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AUTHOR Hayton, Geoff; And Others
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ABSTRACT

This four-part package is designed to assist Australian workshop leaders running 2-day workshops on skills analysis, skills audit, and training needs analysis. Part A contains information on how to use the package and a list of workshop aims. Parts B, C, and D consist, respectively, of the workshop leader's guide; overhead transparency sheets and handouts; and participant information. Each part is divided into seven sections. Section 1 on client expectations and needs covers industry/award restructuring. Section 2 describes the process of skills audits and related processes. Section 3 includes a discussion of skills audits with industrial relations implications and the Structural Efficiency Principle. Section 4 focuses on techniques for data collection and technique selection. Section 5 addresses data analysis and presentation. Section 6 provides an overview of strategies involved in project planning: negotiation, proposal preparation, costing, management, project teams, consultative committee, and climate setting. Section 7 covers four skills issues: (1) multiskilling, cross-skilling, upskilling, and broadbanding; (2) national competency standards; (3) targeted groups; and (4) subcontracting and collaborating. The workshop leader's guide provides recommendations and specific content. The overhead transparency sheets and handouts in Part C are coded to the topics. Part D contains detailed narrative information on the topics. A list of 28 references is appended. (YLB)

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SKILLS ANALYSIS

Workshop package on Skills Analysis, Skills Audit and Training Needs Analysis

Written by:
Geoff Hayton
Paul Brady
Bert Daye

U.S. DEPARTMENT OF EDUCATION
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2. Types of project
3. Industrial relations ramifications
4. Techniques
5. Data analysis
6. Project Planning
7 Skills issues

PART A

How to use this package

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HOW TO USE THIS PACKAGE

This package is designed to assist workshop leaders running two day workshops on skills analysis, skills audit and training needs analysis. Workshop leaders should have presenting skills, be experienced in skills analysis/skills audit projects, and have a good understanding of the range of main techniques used.

Workshop participants

It is expected that workshop participants will be trainers and TAFE college staff wanting to undertake skills analysis/skills audit/training needs analysis projects. Specifically participants should be experienced trainers, teachers, curriculum development staff and marketing and consulting staff. Participants may have little or no experience in skills analysis/skills audit/training needs analysis projects.

Workshop aims

At the completion of the workshop, participants will be able to:

1. Differentiate between skills audit, skills analysis and training needs analysis.

2. State the purpose and uses of each of the above.

3. Describe the main techniques of skills analysis and the strengths and weaknesses of each.

4. Describe the main methods of analysing data from skills analysis projects and ways of presenting and using the results.

5. Use basic principles of project planning and management.

6. Prepare project proposals, including itemised project budgets.

7. Accept the underlying industrial relations ramifications.

8. State ways of dealing with the industrial relations ramifications of such projects.

Structure of the package

This package has four parts:

Part A - How to use this package;

Part B - Workshop leader's guide;

Part C - Overhead transparency (OHT) sheets and handouts;

Part D - Participant information.

Parts B, C and D are each divided into seven sections.

Also, the package should be accompanied by two booklets for the use of workshop leaders: 'Getting to Grips with Industry Restructuring' and 'Getting to Grips with Skills Audits'. These are available from the TAFE National Centre for Research and Development.

Preparing for the workshop

The following preparation is suggested for workshop leaders.

☐ Read 'Getting to Grips with Industry Restructuring' and 'Getting to Grips with Skills Audits'.

☐ Prepare overhead projector transparencies from the sheets in Part C.

☐ Photocopy sets of Part C and Part D for workshop participants. For HANDOUT 3.2 to 3.6, these should be given to participants after the role play. Use coloured paper or card for HANDOUT 3.3, 3.4, 3.5 and 3.6 and handout as explained in Workshop Leader's Guide.

☐ Obtain resources additional to this workshop package as follows:

- MTIA booklet (see Section 3.1);
- sample task analysis chart (see Section 4.2);
- sample questionnaires (see Section 4.4);
- DACUM video (see Section 4.5);
- skills audit software package (see Section 5.1); and
- skills analysis reports (see Section 5.2).

☐ Arrange workshop facilities, which should include:

- overhead projector and screen;
- seminar room plus smaller syndicate rooms;
- VHS video player unit; and
- white boards and/or butchers paper.

WORKSHOP CONTENT

1. CLIENT EXPECTATIONS & NEEDS

   1.1 Client expectations

   1.2 Overview of award restructuring

   1.3 Implications of restructuring

   1.4 Corporate goals/strategic plans

2. TYPES OF PROJECT

   2.1 Work process analysis

   2.2 Job analysis

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   2.4 Skills audit

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   2.6 Developing standards

   2.7 Changing work organisation

   2.8 Job redesign

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4.3 Interview methods

4.4 Questionnaire-based methods

4.5 Group process methods

4.6 Selection of technique

5. DATA ANALYSIS

5.1 Data analysis

5.2 Data presentation

6. PROJECT PLANNING

6.1 Negotiation

6.2 Preparing proposals

6.3 Project costing

6.4 Project management

6.5 Project teams

6.7 Consultative committee

6.8 Climate setting

7. SKILLS ISSUES

7.1 Multiskilling, cross-skilling, upskilling and broadbanding

7.2 National competency standards

7.3 Targeted groups

7.4 Sub-contracting and collaborating

PART B

Workshop leader's guide

WORKSHOP LEADER'S GUIDE

SUGGESTED PROGRAM

DAY ONE

9.00 to 10.00	1. CLIENT EXPECTATIONS & NEEDS
10.00 to 10.30	Morning tea
10.30 to 12.30	2. TYPES OF PROJECT
12.30 to 1.30	Lunch
1.30 to 3.00	3. INDUSTRIAL RELATIONS RAMIFICATIONS
3.00 to 3.30	Afternoon tea
3.30 to 5.00	4. TECHNIQUES

DAY TWO

9.00 to 9.30	'Highlights' from Day One
9.30 to 10.30	4. TECHNIQUES (Continued)
10.30 to 11.00	Morning tea
11.00 to 12.30	5. DATA ANALYSIS
12.30 to 1.30	Lunch
1.30 to 3.00	6. PROJECT PLANNING
3.00 to 3.30	Afternoon tea
3.30 to 4.00	6. PROJECT PLANNING (continued)
4.00 to 4.40	7. SKILLS ISSUES
4.40 to 5.00	'Highlights' from Day Two

SECTION 1

CLIENT EXPECTATIONS & NEEDS

TOPIC	WORKSHOP LEADER'S GUIDE
Introduction	Begin the session by introducing participants to each other in pairs and then reporting to whole group. Briefly introduce yourself. Then give the aims of the workshop, and its outline, using OHT 1.1, 1.2, 1.3.
1.1 Client expectations	Emphasise the need to clearly identify the expectation clients have in undertaking a skill audit. Explain that a request for a skills audit does not constitute a defined list of services but rather a variable set of needs which in some cases may not constitute what can broadly be called a skills audit. Introduce the next topic by explaining that many of the expectations arise from award restructuring and/or the Training Guarantee requirements.
1.2 Overview of award restructuring	This section will need to be handled according to the knowledge/experience of the participants. Staff well acquainted with award restructuring need only to review the themes below with a group brainstorming session plus the summing up component. For less knowledgeable staff, commence the session outlining the reasons for industry/award restructuring. Then split the participants into groups of about 5 and ask each group to come up with the key factors which have reduced the potential for productivity increase. Then conduct a plenary session adding any additional items from the background information. Explain briefly that industry/award restructuring

attempts to overcome many of these factors. Introduce OHT 1.4.

1.3 Implications of restructuring

Split the participants into groups of about five. Ask them to consider a given enterprise such as an auto parts manufacturer and list all the implications restructuring is likely to have on this enterprise, especially in terms of jobs and work. Conduct a plenary and conclude by drawing attention to the fact a client's expectations of a skills audit process will arise from these implications. Draw upon a few items to illustrate the point.

1.4 Corporate goals/strategic plans

Explain corporate goals/strategic plans with the analogy of an organisation as a ship - OHT 1.5 plus Background Information.

Outline why skills audits and training needs analyses have to be consistent with and support the corporate goals and strategic plans of the organisation. Mention that a human resource strategy is part of the strategic plans.

Conclude the section with an explanation of OHT 1.6 giving a brief introduction to the terms depicted.

SECTION 2

TYPES OF PROJECT

TOPIC	WORKSHOP LEADER'S GUIDE
Introduction	State that the aim of this section is to provide an overview of skills audits and related processes and to provide an understanding of their relationships. Various types of projects are possible because one or more of eight processes would be used. List the eight processes (OHT 2.1) to be covered and indicate the key outcomes of each. Explain the relationships between these processes with reference to the flow diagram of OHT 2.2. A comprehensive human resource strategy would involve all eight processes. However, client needs vary and a consultant may be brought in to undertake a project involving only one or two of these processes. Discussion: If you are asked to undertake a single process (e.g. skills analysis) in a manufacturing company, how would you broaden the project to incorporate information from other sources?
2.1 Work process analysis	Define work process analysis, using OHT 2.3. Contrast work process analysis (which examines the *technical* sub-system of work) with the other types of analysis to be described (which examine the *human* sub-system of work). Information from work process analysis complements information from a skills analysis. Both items of information provide a basis for work organisation and job redesign projects.

2.2 Job analysis

Define job analysis, using OHT 2.3. Describe the outcomes of job analysis and occupational analysis, which include:

- a task inventory;
- a job description;
- an occupation/job tree (OHT 2.4).

Job analysis may be undertaken as the first step in developing competency standards.

2.3 Skills analysis

Define skills analysis, using OHT 2.5. Ask participants to discuss briefly, in groups of three, the differences between 'skills' and 'competencies'. Ask three groups to share their discussion outcomes with the whole group. Explain when analysis of competencies would be used instead of skills. Examples would include:

- development of competency standards;
- development of competency-based training curricula; and
- development of competency-based assessment instruments.

Describe the outcomes of skills analysis projects, which may include:

- a skills inventory or skills register; and
- a skills matrix.

2.4 Skills audit

Define skills audit using OHT 2.5.

Explain that other, more inclusive, definitions exist, and that skills audits are often associated with the context of award

restructuring. Ask participants to discuss, in groups of three, the differences between skills analysis and skills audit. How would the wording of questions differ in a self completion questionnaire? Ask three groups to share their discussion outcomes with the whole group.

Describe the outcomes of skills audit projects which may include:

- a skills profile (for an individual or group);
- matches of individuals with particular jobs.

2.5 Training needs analysis

Define training needs analysis (TNA), using OHT 2.6.

Explain that TNA may incorporate job analysis, skills analysis and skills audit, by referring to OHT 2.7.

Discuss the problems with traditional TNA approaches, which may include (see OHT 2.8):

- Non-training solutions are often ignored or not fully considered.
- Skill analysis and training are not linked with the company's goals and strategies.
- Skill analysis is not linked to present and possible future changes to work organisation and job redesign.
- The approach is management oriented, and does not necessarily involve consultation with employees and union representatives.

Describe the outcomes of TNAs, which may include:

- training responses (e.g. off-the-job and/or on-the-job training); and
- non-training responses (recruitment, re-deployment, job redesign project).

2.6 Developing standards

Define and explain competency standard, using OHT 2.9 and HANDOUT 2.10.

Explain that developing competency standards may be undertaken after information is obtained from a job analysis or skills analysis.

2.7 Changing work organisation

Outline the main features of

- Taylorism (OHT 2.11 and OHT 2.12);
- Fordism (OHT 2.13);
- integrated work organisation (OHT 2.14),

indicating that in the 1980s and 1990s there is a significant trend towards the latter in Australia and other developed countries.

Discussion: Give illustrations of the implementation of aspects of integrated work organisation in your own organisation.

2.8 Job redesign

State that changes to work organisation will affect significantly the design of individual jobs.

List the modern principles of job design involving integrated work organisation, team

work, and greater responsibility and skill requirements for operators (see HANDOUT 2.15).

Describe the application of some of those principles in the Palila Clothing Company (see Participant Information - Section 2).

Case study: Hand out 'Case Study One - Part A and Part B' (HANDOUT 2.16 and HANDOUT 2.17). Divide participants into groups of four people (for one hour). Ask each group to:

- prepare a draft project method based on information in Part A; and
- develop *radical* options for changes to work organisation and job design based on information in Part B.

In a plenary session, compare methods and options for work organisation/job design developed by the groups.

SECTION 3

INDUSTRIAL RELATIONS RAMIFICATIONS

TOPIC		WORKSHOP LEADER'S GUIDE
Introduction		Explain the need to always understand the skills analysis/skills audit process as linked to industrial relations issues.
3.1	**Skills audits and the structural efficiency principle**	Explain what is meant by *Structural Efficiency Principle* and its effects on the workplace. Briefly discuss the Metal Trades Award (from MTIA material). Group work: Use the accompanying sheet "differences between traditional and emerging industrial relations" (HANDOUT 3.1) for groups of five to complete. Allow 10-15 minutes. Conduct a plenary, using the material from Niland in Section 3 of participant information to conclude the session.
3.2	**Industrial relations issues at the workplace**	Role play: Use CEDAX role play with at least four people per group (see accompanying resources HANDOUT 3.2, 3.3, 3.4, 3.5 and 3.6). Read detailed instructions in HANDOUT 3.2. Ask each of the four role players to go to separate rooms for initial briefing by you. Handout briefing cards as appropriate (HANDOUT 3.3 plus HANDOUT 3.4 or 3.5 or 3.6). Brief each group. Then start role play with composite groups. Additional members can play any of the parties-TAFE, Union, Management. After half an hour ask the groups to conclude their negotiation.

TOPIC		WORKSHOP LEADER'S GUIDE
		Plenary session: Ask the observers to comment on the industrial relations issues involved and problems in the TAFE role. Open the discussion up to other members of the groups. Summarise the session by listing the major themes that occurred.
3.3	**Ways to handle industrial relations issues**	Briefly discuss ways to handle I.R. problems (Participant Information - Section 3) and plans drawn up in CEDAX.
Review		Review Sections 1, 2 and 3 (Day One) asking participants to 'highlight' one or two topics which they found useful to them. This could be done at the end of Day One or start of Day Two. Allow 20 to 30 minutes.

SECTION 4

TECHNIQUES

TOPIC	WORKSHOP LEADER'S GUIDE
Introduction	Explain that each type of project, dealt with in the Section 2 of the workshop, may use any one of a wide range of data collection techniques. Over 100 such techniques were identified in a 1987 project of the TAFE National Centre, and these could all be classified under one of five categories (see OHT 4.1): . organisational records . observation methods . interview methods . questionnaire-based methods . group process methods
4.1 Organisational records	State that this method will be a useful first step for most projects. Distribute a sample job description and person specification and discuss how they could be incorporated in a skills analysis. List the strengths and weaknesses of organisational records (OHT 4.2).
4.2 Observation methods	State that informal observation of the work-place will be a useful early step for most projects. It can rapidly establish the basic parameters of the job. Emphasise industrial relations sensitivity of observation methods and outline ways of overcoming these.

Distribute a sample task analysis chart (if available) and discuss.

List the strengths and weaknesses of observation methods (OHT 4.3), highlighting the need for the cooperation of operators through consultation.

4.3 Interview methods

State that interviews are the most easily applied technique for skills audit and related projects. The sensitivity of the method is particularly useful when industrial relations issues are involved.

List the strengths and weaknesses of interview methods (OHT 4.4). Highlight the need for training of interviewers.

Discuss (for 5 minutes in pairs) the merits of telephone interviews. Ask five pairs to share their views with the whole group.

4.4 Questionnaire - based methods

State that questionnaire-based methods are the most commonly used for skills analysis and related projects.

Explain that they are particularly economical for surveying a large group of people. However, they require considerable skill in questionnaire design, and may not be suitable for respondents with low literacy skills.

Give an overview of the range of questionnaire-based methods, including general methods and specialised techniques such as COPAP and Delphi.

List the sections that could be used in a skills audit questionnaire (OHT 4.5), giving examples of questions in each section. Explain which sections are essential for:

- a skills audit
- a skills analysis
- a job analysis
- a training needs analysis

Distribute a sample questionnaire (or part of a questionnaire).

List the strengths and weakness of questionnaire-based methods (OHT 4.6).

Discuss ways of overcoming or minimising each of the listed weaknesses.

Case study: Ask participants, in pairs, to design a questionnaire for the data collection phase of a skills audit project.

The groups are to:

- specify which sections are to be used; and
- compose at least one question in each section.

Allow 20 minutes for group work and 10 minutes for reporting at plenary session.

4.5 Group process methods

State that group process methods are often used for skills analysis and related projects because they are:

- fast; and
- inexpensive.

Groups are good at generating ideas and creative solutions. The process is usually satisfying for group members.

Outline the range of techniques, listing:

- brainstorming;
- nominal group technique;
- DACUM;
- force field analysis;
- search conference; and
- storyboarding.

Explain that most techniques are based on brainstorming, with two key phases:

- idea generation; and
- idea evaluation.

Demonstrate one of the techniques. Allow 20 to 30 minutes. For example, *brainstorm* the 'skills required by TAFE teachers' with the whole group. For idea generation, write knowledge, skills and attitudes on a board or butchers paper. For idea evaluation, ask the group to think of four to eight knowledge and skill categories (e.g. teaching, curriculum development, industry liaison, management/administration, staff development, workplace context and general personal qualities) and classify each one listed.

Identify the two or three most important skills in each category by a voting procedure.

Discuss the strengths and weaknesses of the demonstrated approach. Ask how it could have been improved.

View the DACUM video (available from the TAFE National Centre) and discuss the merits of DACUM.

List the strengths and weaknesses of group process techniques generally (OHT 4.7).

4.6 Selection of technique

Explain that there is no one best technique which covers all situations. It is important therefore to choose the most appropriate for each situation. Also, two or three techniques may be combined in the one project.

List the eight factors to consider when choosing the technique (OHT 4.8). Mention that the 'Method Selection Matrix' (OHT 4.9), may be used, and distribute copies of the matrix. (Details of how to use the matrix are given Hayton et al, (1988 and 1989.)

SECTION 5

DATA ANALYSIS

TOPIC	WORKSHOP LEADER'S GUIDE
Introduction	State that data analysis is an important part of skills analysis and related projects. Data analysis is usually a separate phase in the project except for group process methods. The method of data analysis and ways of presenting results should be considered at the project proposal and planning stages.
5.1 Data analysis	State that the main choices to be made are (see OHT 5.1): . manual or computer analysis; . type of computer program; . selection of analyst. Explain the merits of each choice, referring to HANDOUT 5.2. Factors to consider are: . size of sample; . availability of expertise; and . availability of computer package. Demonstrate a skills audit software package. (Use a package you are familiar with or arrange for a demonstration by a commercial supplier.) Allow 20 to 30 minutes for the demonstration. List the currently available and known skills audit software packages.

5.2 Data presentation

Explain and discuss each of the following ways of presenting skills analysis and related project data:

- preparation of a skills register and skills profile for each individual, showing the skills required for his/her present job and the skills possessed;
- aggregation of data on skills possessed for a group of people (e.g. all electronic tradespeople, all TAFE teachers);
- preparation of a skills matrix showing the skills possessed, skills required and skills developed in training programs for visual comparisons (see HANDOUT 5.3);
- cross-tabulation of data on skills with data on background information for groups of people; and
- in the case of a standards development project, preparation of a competency standards table, giving units of competence, elements of competence, performance criteria and range statements (see OHT 5.4).

Distribute appropriate samples of each.

SECTION 6

PROJECT PLANNING

TOPIC	WORKSHOP LEADER'S GUIDE
Introduction	State that this section aims to provide an overview of the strategies which are involved in successful project planning. List the seven key aspects to the covered, using OHT 6.1: • negotiation • preparing proposals • project costing • project management • project teams • consultative committee • climate setting
6.1 Negotiation	Explain what negotiation is, using OHT 6.2. Describe and discuss the main principles of effective negotiating (using OHT 6.3): 1 Preparation: Do your homework. Identify attractive alternatives; 2 Clarify your position and their's: Ask questions. Restate your understanding; 3 Listen actively: Talk less than 50% of the time; 4 Remain open: Don't close or conclude too early; 5 Provide help for other party: Put yourself in the other's shoes;

6 Trade: Trade what is cheap for you but valuable to other party for what is valuable to you but cheap to others;

7 Be prepared to apologise: It will de-escalate negative feelings;

8 Don't issue ultimatums: This requires surrender or fight, and reduces future cooperation;

9 Set achievable time-lines: For complex negotiation, deadlines for agreement. Don't go on too long.

Discuss the two main factors which affect negotiating styles:

. assertiveness (OHT 6.4, 6.5);

. cooperation (OHT 6.6).

Discuss the four types of negotiating styles using OHT 6.7:

. uninvolving;
. surrendering;
. dominating;
. problem solving.

The problem solving style is the ideal negotiating approach which should lead to 'win-win' resolutions.

6.2 Preparing proposals

Conduct a whole group brainstorming session to list sections that could be included in a project proposal. Evaluate (e.g. by a voting procedure) the list to decide which are the key sections that must be included. Describe your own approach to project proposals.

6.3 Project costing

Explain the two key principles that should be followed (OHT 6.8):

- use standard formulae to ensure that costing is both accurate and fast;
- the work done on costing should provide a sound basis for project management.

Discuss the reasons for using these two principles.

Explain the following seven step procedure which could be used as part of the preparation of the project proposal and also give the basis for project management.

The main steps include (see OHT 6.9):

1 state project objectives

2 describe project methodology to be used

3 breakdown the project into 'tasks' or 'units of work'

4 estimate the consulting days required for each task/unit

5 chart the sequence and duration for each task/unit (see HANDOUT 6.10)

6 estimate the cost of each project item using a checklist (see HANDOUT 6.12) and standard formulae where appropriate

7 set out budget based on these estimates (see HANDOUT 6.13).

One option for simplifying step number 6 is to use an inclusive consulting charge out rate

(e.g. $1,200 per day) and multiply by consulting days (step 4) to get total project cost. Only extraordinary costs (such as interstate travel) would be additional. Discuss the advantages and disadvantages of this approach. Discuss the issue of how much costing detail should be included in project proposals.

Discuss the need to be both competitive (in terms of cost) and profitable. Refer to cost ranges for skills audit projects (OHT 6.14).

Case study: Hand out 'Case Study Two - Part A' (HANDOUT 6.15) and project schedule chart (HANDOUT 6.10). Divide participants into groups of four people (for 45 minutes). Ask each group to prepare a draft project proposal based on the information in Case Study Two - Part A. The proposal must include a budget and project schedule.

In a plenary session, compare budgets and project schedules of the groups and discuss the merits and attractiveness to the client of each.

6.4 Project management

Explain that a key to good project management is close monitoring and control of time and money expenditure. The system described here is based on *three tools* (see OHT 6.16):

- project budget versus expenditure table (from costing step 7);
- project schedule (from costing steps 4 and 5);
- person-days chart (see HANDOUT 6.17, 6.18 and 6.19).

Each of these tools may be manual (as illustrated in HANDOUT 6.10, 6.13 and 6.17) or computerised.

Explain that targets may be derived from these charts by the project manager for team members and the whole team. The targets could be in terms of output, quality, expenditure and time.

Case study: Hand out person-days chart (HANDOUT 6.17) and Case Study Two - Part B (HANDOUT 6.20). Divide participants into the same groups of four (for 30 minutes). Tell each group that it has been awarded the contract for the Case Study Two project.

Ask the group to plan the project by preparing a person-days chart for the Case Study Two project. Three people are to form the project team as follows:

- Hugh - an expert in group processes and job redesign
- Dwight - an expert in surveys and questionnaire design
- Lewis - an expert in data analysis

The group must then set appropriate targets for the team and team members for the first two months of the project.

In a plenary session, ask group spokespeople to present each group's person-days chart and targets.

6.5 Project teams

Group discussion: Pose the question: "Why have project teams?" to the whole group.

List the eleven characteristics of effective teams (OHT 6.21) and give an illustration (or

ask the participants to give illustrations) for each characteristic.

List and discuss the seven actions (OHT 6.22) required by team leaders to keep teams working smoothly.

6.6 Consultative committee

Explain that using an existing consultative committee or setting up one for the project is an important way of winning wide support for the project and its outcomes. Such a committee could continue to have a wider role of helping the implementation of workplace restructuring.

Other important points are:

- its composition should reflect the workforce (in terms of main job types, ethnic groups, and women/men);
- representatives will need time to seek the views of the group they represent;
- members may need training to effectively present their views;
- the committee should be consulted at all key stages in the project.

Group discussion: Ask group to give illustrations of effective and ineffective consultative committees. Discuss.

6.7 Climate setting

Explain that the critical early stages of the project should focus on 'climate setting' in order to gain understanding of, and cooperation for, the project processes. This involves three elements:

- working with the consultative committee;

- meeting with key individuals;
- briefing the whole workforce.

Briefing the workforce should be achieved through meetings (not memos!) at which it is explained:

- what the aims of the project are;
- what people can expect and who will be involved;
- how employees can participate;
- what the expected project outcomes are.

SECTION 7

SKILLS ISSUES

TOPIC		WORKSHOP LEADER'S GUIDE
Introduction		Explain that this final section aims to briefly introduce a range of other topics related to skills analysis. The topics include: . multiskilling, cross-skilling, upskilling and broadbanding; . national competency standards; . targeted groups; . sub-contracting and collaborating.
7.1	**Multiskilling, cross-skilling, upskilling and broadbanding**	Present definitions of each of these. Explain the differences between the first three using OHT 7.1.
7.2	**National competency standards**	Outline the nature and purpose of national competency standards. Describe how they are being developed. Explain how they are written, using OHT 5.4 and referring to the example in the Participant Information - Section 7.
7.3	**Targeted groups**	Discuss the importance of dealing with the needs of targeted groups such as women and people of non-English speaking background in both the *process* and *product* of skills analysis and skills audit projects.

TOPIC	WORKSHOP LEADER'S GUIDE
7.4 Sub-contracting and collaborating	Outline the merits of sub-contracting and collaborating. For sub-contracting the advantages include: . obtains expertise not available within your organisation; . may be more economical; and . can speed up the project. For collaboration, the above advantages apply, but additional advantages are: . greater credibility in the project proposal; . larger team with range of expertise.
Review	Review Sections 4, 5, 6 and 7 (Day Two), by asking participants to 'highlight' one or two topics which they found useful to them. Allow 20 minutes.
Evaluation	If this workshop is to be repeated, ask participants to complete the evaluation form (HANDOUT 7.2).

PART C

OHT sheets & handouts

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WORKSHOP AIMS

At the completion of the workshop, participants will be able to:

1. **Differentiate between skills audits, skills analysis and training needs analysis.**

2. **State the purpose and uses of each of the above.**

3. **Describe the main techniques of skills analysis and the strengths and weaknesses of each.**

4. **Describe the main methods of analysing data from skills analysis projects and ways of presenting and using the results.**

5. **Use basic principles of project planning and management.**

6. **Prepare project proposals, including itemised project budgets.**

7. **Accept the underlying industrial relations ramifications.**

8. **State ways of dealing with the industrial relations ramifications of such projects.**

WORKSHOP PARTICIPANTS

Participants should be trainers and college-based staff wanting to undertake skills analysis/audit/ training needs analysis projects. Specifically participants should be experienced trainers, teachers, curriculum development staff and marketing and consulting staff.

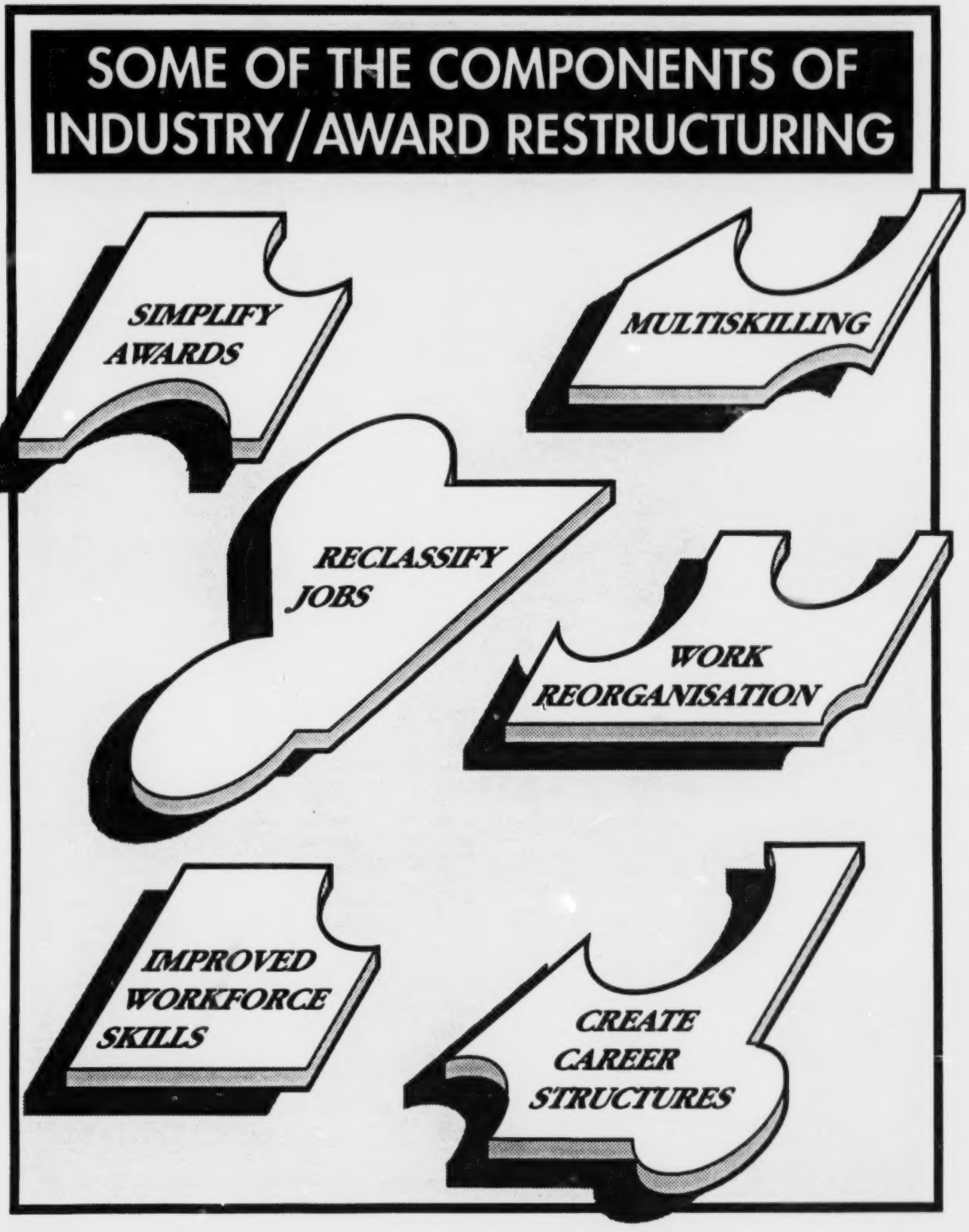
WORKSHOP OUTLINE

DAY ONE

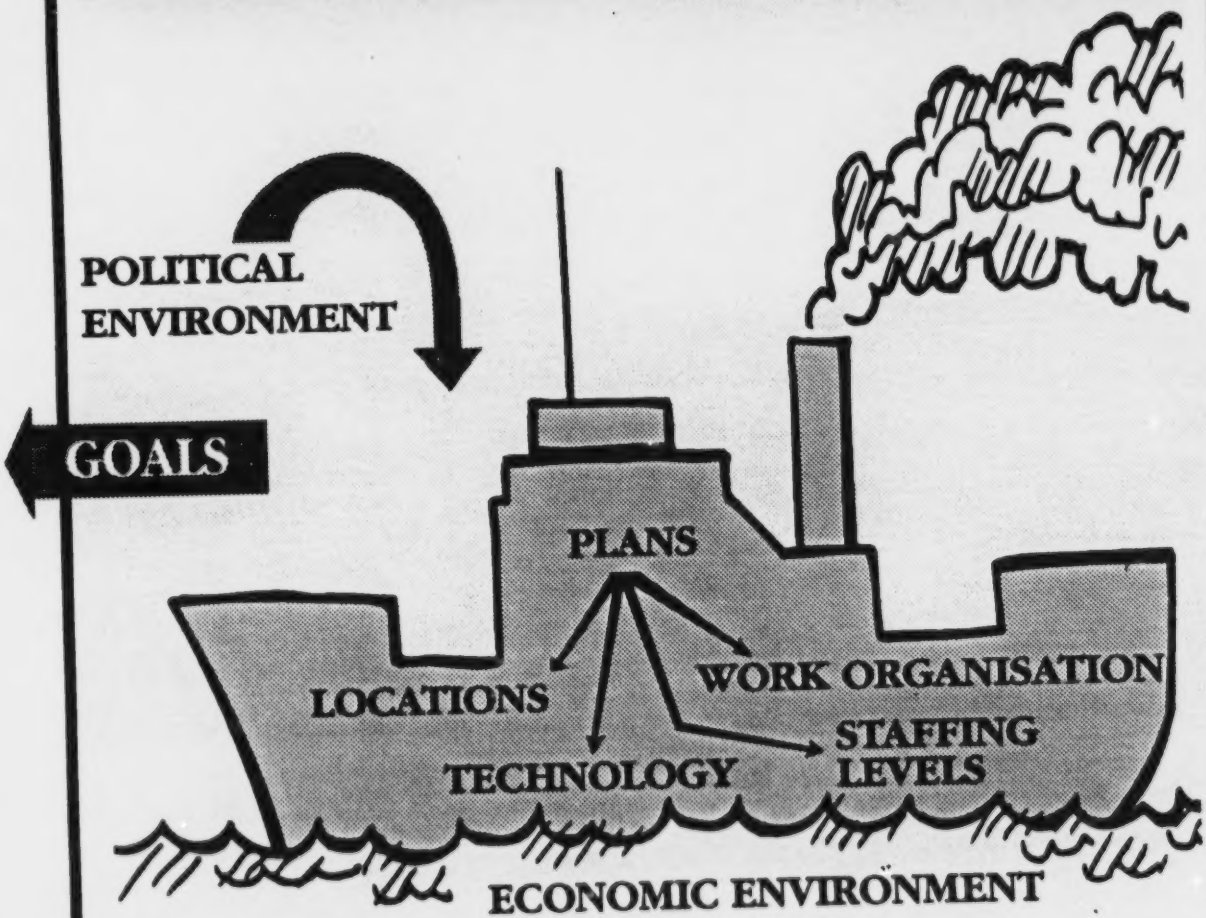
1. **Client expectations and needs**
2. **Types of project**
3. **Industrial relations**
4. **Techniques**

DAY TWO

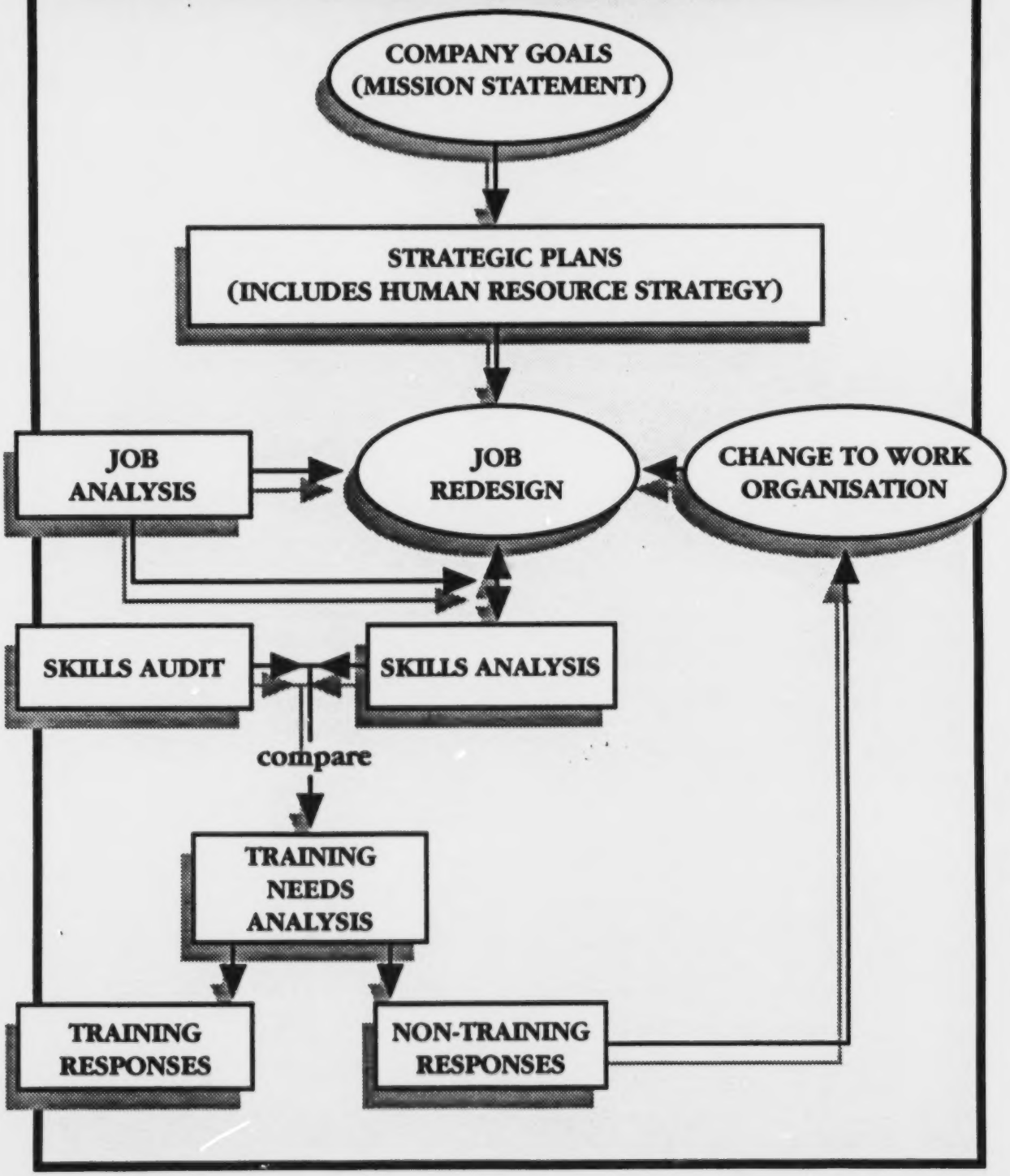
4. **Techniques (continued)**
5. **Data analysis**
6. **Project planning**
7. **Skills issues**


SOME OF THE COMPONENTS OF INDUSTRY/AWARD RESTRUCTURING
SIMPLIFY AWARDS
MULTISKILLING
RECLASSIFY JOBS
WORK REORGANISATION
IMPROVED WORKFORCE SKILLS
CREATE CAREER STRUCTURES

CORPORATE GOALS/ STRATEGIC PLANS



RELATIONSHIP OF SKILLS AUDIT ELEMENTS AND COMPANY GOALS/STRATEGIC PLANS



TYPES OF PROJECT

PROCESS	SOME KEY OUTCOMES
Work process analysis	• Description of technical sub-system • Work flow diagram • Workplace layout diagram
Job analysis	• Job description • Duty and task inventory • Occupational/job tree
Skills analysis	• Skills inventory/register • Skills matrix
Skills audit	• Skills profile
Training needs analysis	• Training specification
Developing standards	• Set of national training standards
Changing work organisation	• Charts describing new work organisation
Job redesign	• New job descriptions • New skills matrix • Job matrix with career paths and integrated training

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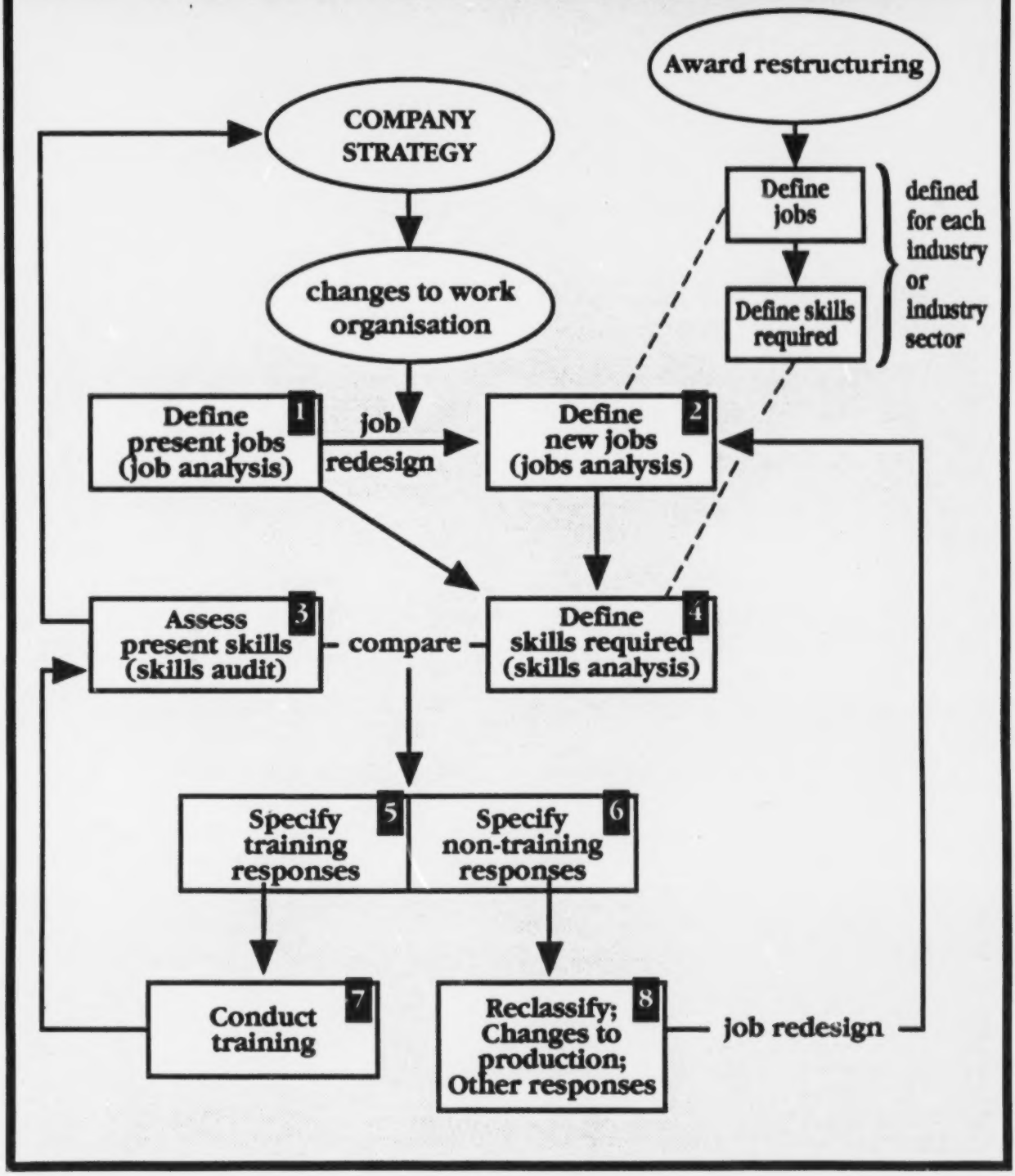
THE ELEMENTS OF A COMPANY SKILLS AUDIT AND THEIR RELATIONSHIPS



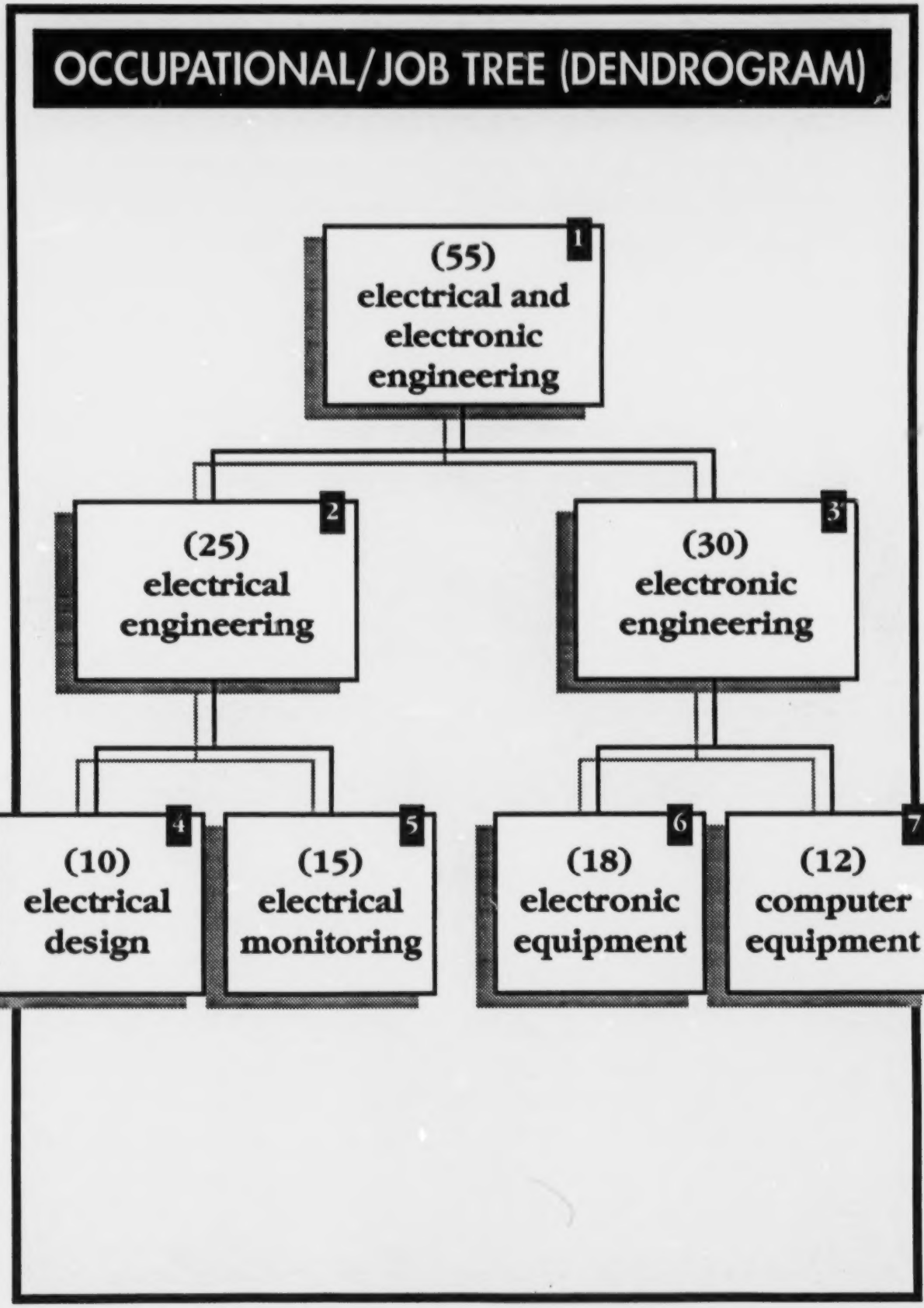
NOTE: All boxes refer to the company except for the two boxes in the top right-hand corner.

WORK PROCESS ANALYSIS

Work process analysis examines the technical subsystem of the work, including the workplace layout, jobs, technology, operations, procedures, material flow and information flow.

JOB ANALYSIS

Job analysis examines the human side of work in terms of the duties and tasks to be performed by the person working in each job.


OCCUPATIONAL/JOB TREE (DENDROGRAM)
1
(55)
electrical and
electronic
engineering
2
(25)
electrical
engineering
3
(30)
electronic
engineering
4
(10)
electrical
design
5
(15)
electrical
monitoring
6
(18)
electronic
equipment
7
(12)
computer
equipment

SKILLS ANALYSIS

A skills analysis is a systematic process which identifies the skills or competencies required for a particular job.

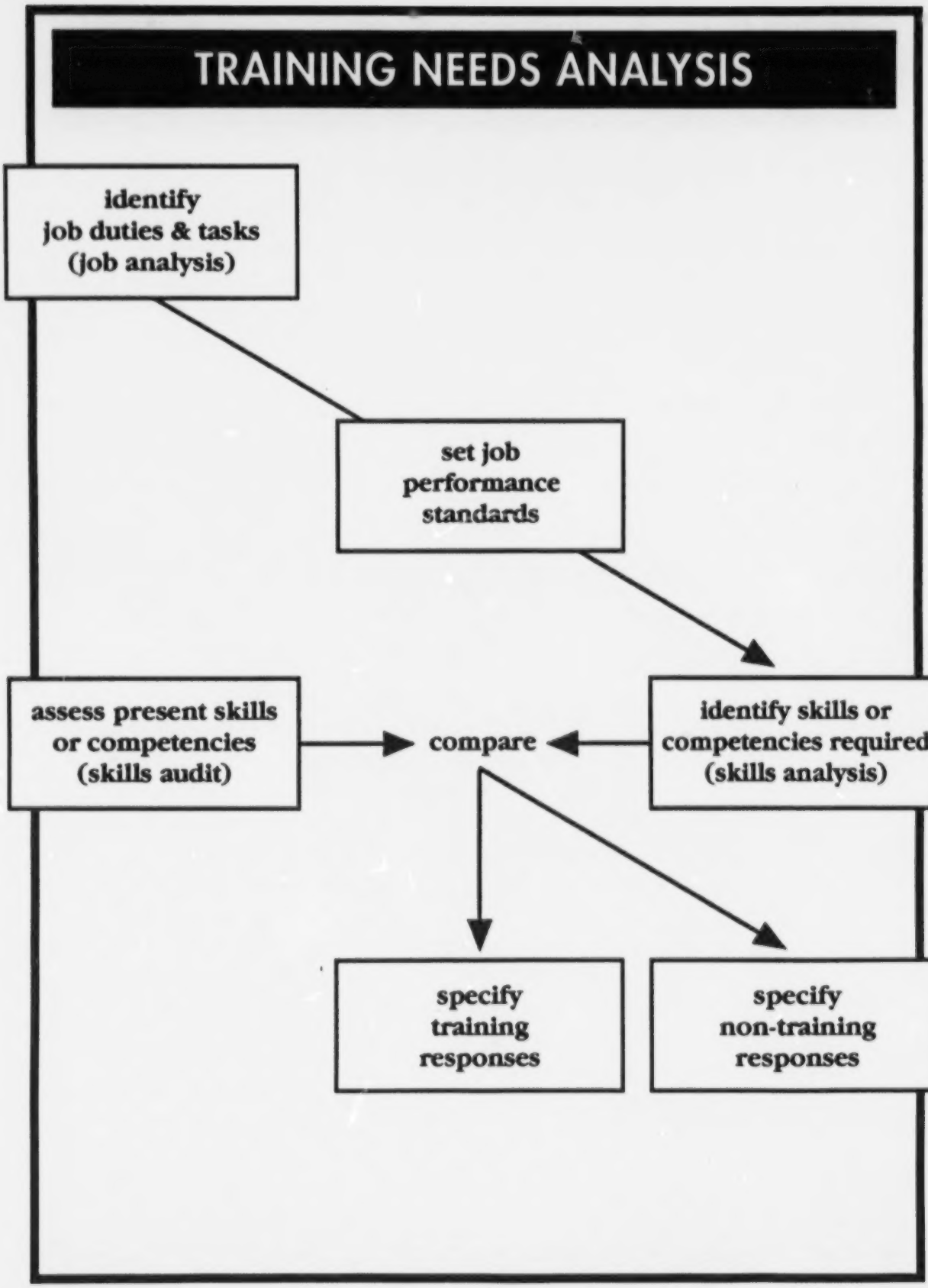
SKILLS AUDIT

A skills audit is a systematic process which identifies the skills or competencies held by an individual or a group.

TRAINING NEEDS ANALYSIS

A training needs analysis is the identification of the differences between the skills or competencies held by an individual or group and the skills or competencies required for the job.

{The term *skills* is used here in the broad sense to include knowledge, (manual) skills, and attitudes.}


TRAINING NEEDS ANALYSIS
identify job duties & tasks (job analysis)
set job performance standards
assess present skills or competencies (skills audit)
compare
identify skills or competencies required (skills analysis)
specify training responses
specify non-training responses

PROBLEMS WITH TRADITIONAL TNAs

- **non-training solutions often ignored**
- **not linked to competitive strategies**
- **not linked to changes in work organisation and job redesign**
- **management oriented**

COMPETENCY STANDARD

DEFINITION:

COMPETENCY STANDARD = **ACTIVITY**

\+

PERFORMANCE CRITERIA

\+

CONTEXT AND CONDITIONS

HANDOUT 2.10

EXAMPLE OF A

COMPETENCY STANDARD

ELEMENT OF COMPETENCE

Implements measures for dealing with hazardous events associated with electrical work.

- **ACTIVITY**
- **CONDITION**

PERFORMANCE CRITERIA

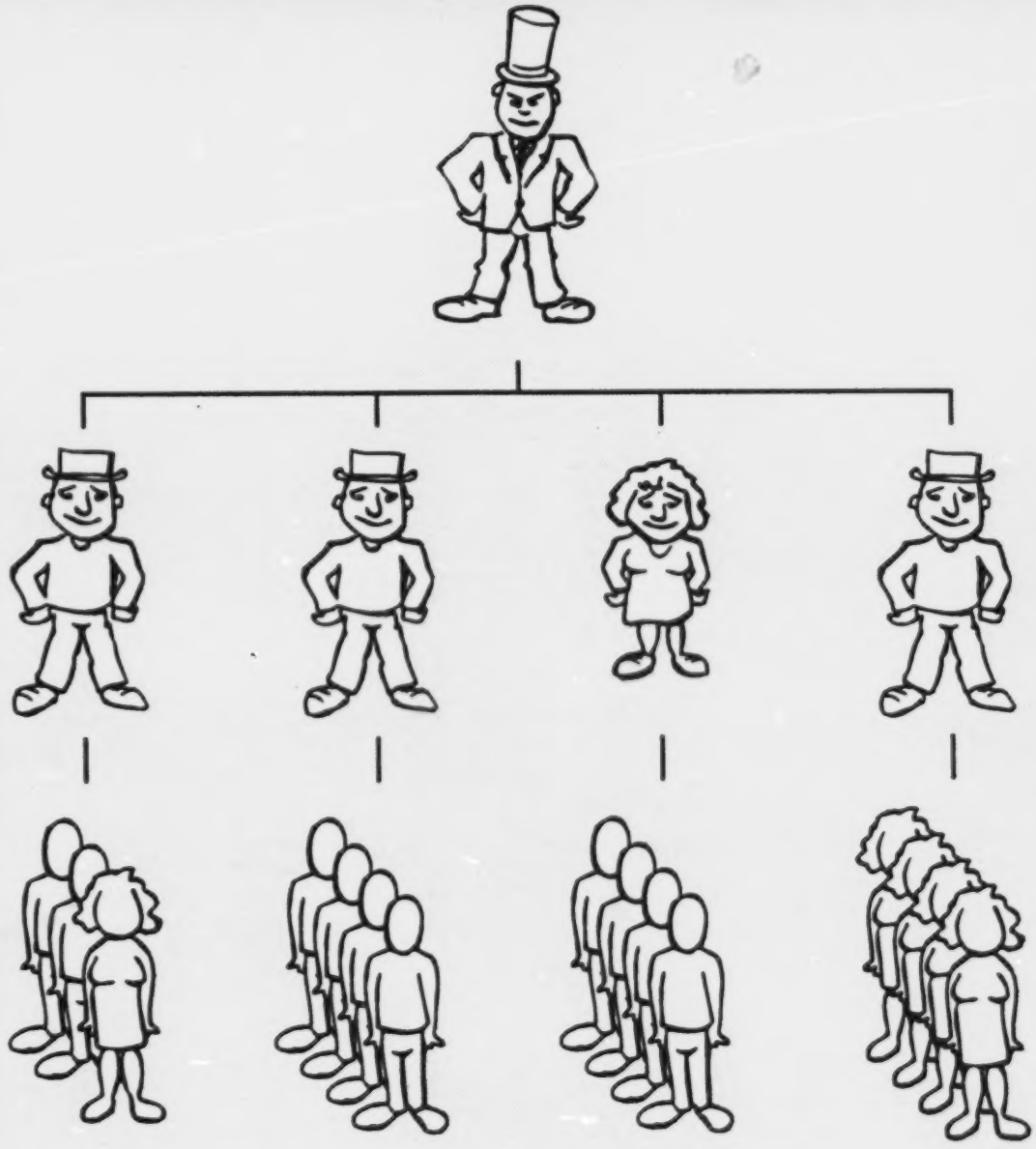
- **Recognises and eliminates electrical hazards in workplace (e.g. risk of electric shock).**
- **Demonstrates ability to deal with chemical spills and identifies any associated first aid required.**
- **Recognises and demonstrates use of fire extinguishers to put out range of fires which can occur in workplace.**
- **Demonstrates technique for evacuating the workplace (e.g. fire evaluation procedures).**
- **Demonstrates method of freeing person receiving electrical shock.**
- **Demonstrates ability to assess treatment needed by victim of electrical shock.**
- **Demonstrates ability to manage electrical burns and other wounds.**

TAYLORISM

KEY FEATURES:

- **a strictly hierarchical work organisation;**
- **deskilling of work by progressively narrowing the scope of each job;**
- **analysing and then standardising the methods used in each job;**
- **strict supervision of workers at every level.**

TAYLORISM



FORDISM

For manufacturers, Fordism involves:

TAYLORISM +

- **standardisation of products;**
- **large volume/low cost marketing;**
- **flow-line assembly.**

INTEGRATED WORK ORGANISATION

KEY FEATURES:

- **flatter management structure with fewer hierarchical levels;**
- **skill broadening with less specialisation;**
- **smallness of scale;**
- **semi-autonomous teams**

JOB DESIGN

Modern principles of job design involve:

- **the concept of closure, where a team of workers complete a whole series of tasks;**
- **the inclusion of control and monitoring tasks;**
- **the inclusion of quality inspection tasks;**
- **the opportunity for task variety;**
- **minimum specification by management of production or operation objectives;**
- **self-regulation, where workers have the freedom to choose how they accomplish their production or operation objectives;**
- **workers are offered training in the technical and team skills needed for a self-regulation approach;**
- **co-operative job structures which encourage employees to use the widest possible range of skills from within the same work group;**
- **rapid feedback on performance;**
- **responsibility for own tools, equipment and territory;**
- **the monitoring and control of errors, waste and variation must be as close to their point of source as possible;**
- **reduction of errors, waste and variation to reduce the level of supervision and control.**

CASE STUDY ONE (PART A)

To examine

1. **Job design**
2. **Training needs**

Assumptions

a. **A medium sized company in printing and manufacturing paper products.**

b. **Three factories in Australia with the following job classification:**

Electricians
Maintenance fitters
Production workers/machine operators
Supervisors and middle managers

c. **Many employees in the company have skills not used for their jobs.**

d. **The company wants to identify all skills held by the employees.**

e. **The company is concerned about local competition, and has identified the need to greatly shorten the time between order and delivery, and to improve quality.**

f. **The company is anxious to address their requirement under the guidelines of the Training Levy.**

Some organisational culture

. **The company wants to improve productivity, efficiency and flexibility.**

. **The company wants to rationalise the number of awards working on the floor at present.**

. **The company wants to enhance the skills of all workers.**

. **The workers want to have greater autonomy in the workplace.**

. **A consultative committee has been formed to assist the consultants.**

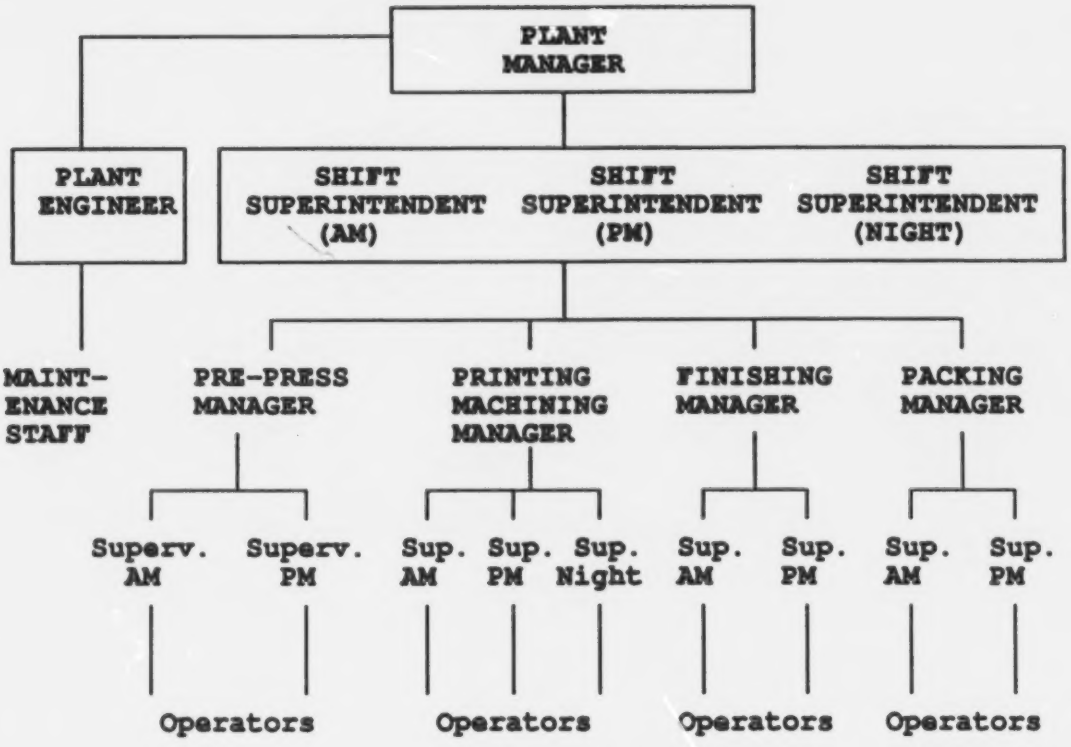
Your task:

Prepare a flow chart which outlines the approach you would use to examine job design and analyse training needs.

CASE STUDY ONE (PART B)

After a visit to the main factory you have obtained the following information.

The management structure is headed by the General Manager/Executive Director. Reporting to him is the Finance Director and Sales Director, as well as three Plant Managers. At each of the three factories the following structure applies.



In addition, a Quality Control Officer (with three day-shift testers) reports to the Shift Superintendent.

Workflow involves large batch production, with 6 to 10 products running through the plant at any one time, with each batch lasting about one week. For each product the flow is

Product 1

⇓
material store

⇓
pre-press

⇓
printing

⇓
finishing

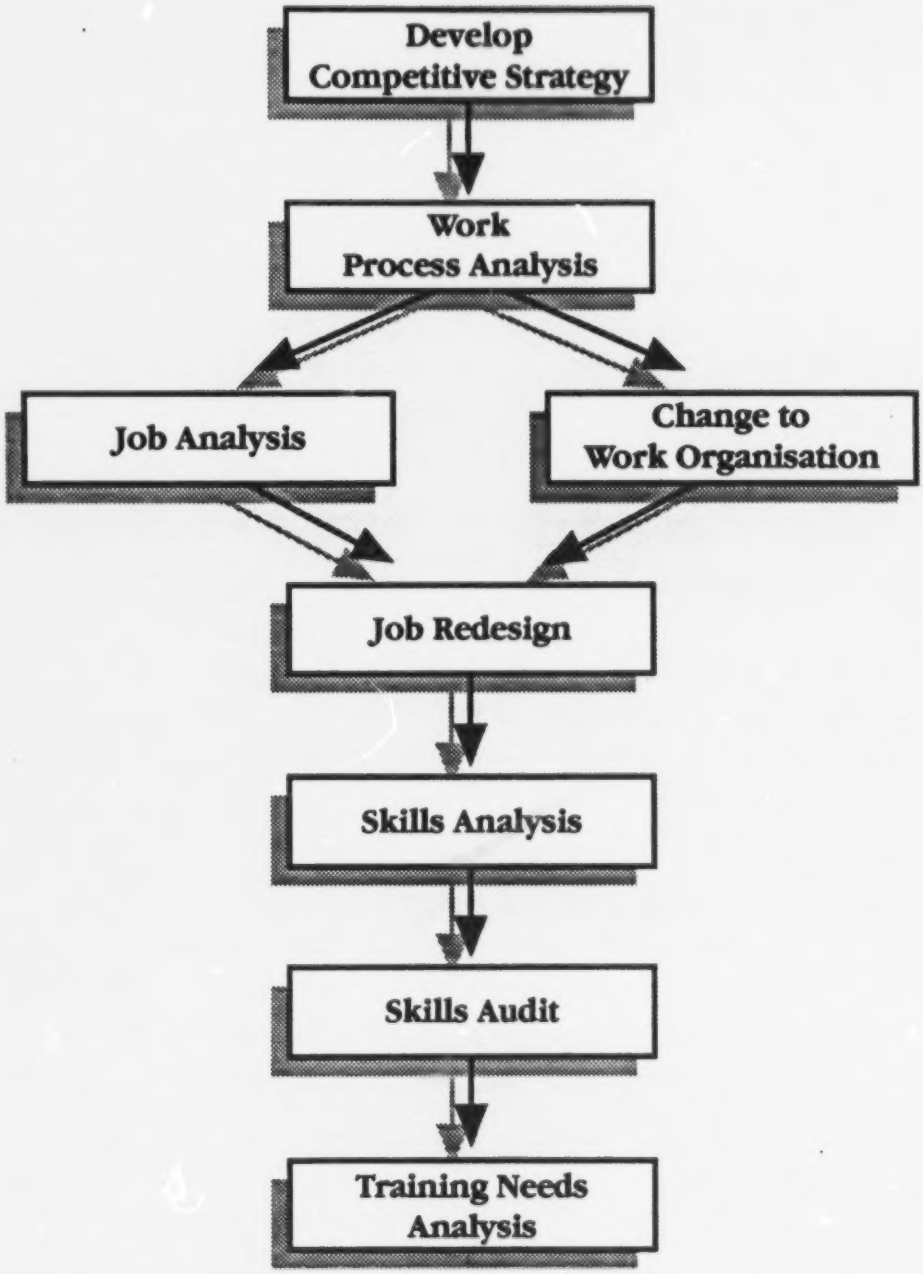
⇓
packing

⇓
store/dispatch

***Your task*:**

Explore the problems with the current arrangement, and suggest one or two *radical* options for changes to work organisation and job design.

A SEQUENCE OF PROJECTS



DIFFERENCES BETWEEN TRADITIONAL AND EMERGING INDUSTRIAL RELATIONS

	TRADITIONAL	EMERGING
pay linked to:		
performance gained through:		
degree of work specialisation		
input by employees in the planning process		
degree of hierarchical levels		
settlement of conflict		

CEDAX ROLE PLAY

NOTES FOR FACILITATOR

There are four roles in the game, i.e. TAFE Rep., Union Rep, Personnel Officer and Observer. Start the session by conducting briefings for participants in each of the roles. Ensure that participants playing a role different to those in the briefing are out of hearing range.

Introduce yourself to the TAFE personnel as the college deputy principal. Tell them that student numbers are down and that maintenance of full or increased staffing is dependent on more students. Fee for service is one way to achieve this. Tell them that the phone call from Cedax Furniture holds the possibility of a fee for service contract. Tell them that you are relying on them to get results. Let participants read the cards and clarify any information as necessary.

Introduce yourself to the personnel officers as the managing director. Tell them that times are tight and that with no potential for an increase in production, the organisation needs to be restructured with hard decisions possibly having to be made in the future. Since a new award has come into being it would be a good idea to do a skills audit of staff like a number of other organisations have already done. This can then be the beginning of the restructuring process. Tell the participants that under no circumstances are they to discuss staff reductions or emphasise job redesign or work reorganisation. Stress the need for a positive approach to staff, avoid alarmist talk and to sell the skills audit process on the basis of the benefits staff will obtain from it. Let participants read the cards and clarify any information as necessary.

In the case of the observer and union representative briefings simply let participants read the cards and clarify any information as necessary.

BRIEFING CARD - ALL ROLES

INSTRUCTIONS FOR CEDAX

1. **Read the cards and dont show them to other players until after the briefing**

2 **Negotiate with the other players to come up with a plan indicating what exactly will take place including the activities to be engaged in by each of the parties.**

3 **Briefing session- description of process, the plan, list of i.r. issues involved, discussion on plans.**

PERSONNEL OFFICER (TWO CARDS)

P.O.-2

One week ago you phoned Boronia Vale College of TAFE and spoke to the Deputy Principal about the possibility of doing what you called a "skills audit" of your staff. Your expectation is that TAFE will be able to establish a list of all staff members and the skills they possess in relation to the ones required in the future.

In the forthcoming meeting with the union and TAFE you will emphasise that the skill audit will be used to place employees in the new award and help determine what training will be required.

PERSONNEL OFFICER, CEDAX FURNITURE COMPANY

Your company is currently having a bad time competing with imported furniture. Management have asked you to restructure the workplace to bring about cost savings.The market does not offer scope for additional production.You have decided that to achieve this you need to significantly reduce the current workforce. At the same time, there is also a need to re-classify remaining staff within a new award. This in turn will involve you in job redesign and work reorganisation for staff.

You along with management have been reluctant to discuss staff reductions, job redesign and work reorganisation with staff.

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UNION REPRESENTATIVE (THREE CARDS)

LOCAL REPRESENTATIVE OF UNION DEALING WITH PRODUCTION WORKERS

The personnel officer has just invited you to come to a meeting at which both he and a representative of TAFE will be attending. He has informed you that he would like to engage TAFE to do a skills audit of staff for purposes of placement in the new award and the determination of training needs.

You know that the company is facing hard times from overseas competition and recently heard a rumour from one of the sales staff that retrenchments are being considered.

UNION REPRESENTATIVE (cont.)

You have mixed feelings about the training aspects. You would like to know what commitment management really has towards training. You would like staff to get access to accredited training at company expense.

Another rumour you heard is that there could be a takeover of the company leading to substantial rationalisation of staff.

You are concerned that the skill audit therefore might be used as part of a staff rationalisation exercise. You are not inclined to allow individual data to be gathered on your union members (ie production workers) as you believe the placement on levels of the new award will be an easy process and should only involve a personal interview between the staff member, the personnel officer and yourself.

TAFE REPRESENTATIVE (ONE CARD)

TAFE REPRESENTATIVE

The Deputy Principal has asked you to follow up a request for a skills audit by the personnel officer of Cedax Furniture. When you phoned him he arranged a meeting between himself, a union representative and yourself. In the brief conversation with him he mentioned how interested he is in organising training for staff.

DATA COLLECTION TECHNIQUES

ORGANISATIONAL RECORDS

- job descriptions
- person specification
- reports/documents

OBSERVATION METHODS

- informal observation
- method study
- task analysis

INTERVIEW METHODS

- unstructured interview
- structured interview
- telephone interview

QUESTIONNAIRE-BASED METHODS

- general mail survey
- CODAP
- Delphi

GROUP PROCESS METHODS

- brainstorming
- nominal group technique
- DACUM method
- force field analysis
- search conference
- storyboarding

ORGANISATIONAL RECORDS

Strengths

- inexpensive, as information is readily available
- provides necessary background knowledge

Weaknesses

- information may be out-of-date
- subjectivity
- may require content analysis skills

OBSERVATION METHODS

Strengths

- Economic - for small numbers
- may be unobtrusive
- minimises interruption
- can obtain highly relevant data

Weaknesses

- requires skilled observer
- requires objective recording
- requires cooperation of those to be observed

INTERVIEW METHODS

Strengths:

- Easier to gain respondents' confidence
- Questions can be clarified
- Feedback can be given immediately
- More personal
- Suitable for examining sensitive subjects

Weaknesses:

- Time consuming
- Lack of consistency between interviewers
- Can get off the track
- Opinions & feelings instead of facts

SKILLS AUDIT QUESTIONNAIRE

COULD INCLUDE QUESTIONS ON:

1. **THE ORGANISATION**
   e.g. main activities, number of employees

2. **BACKGROUND INFORMATION ON THE RESPONDENT**
   e.g. age, gender, education and training

3. **THE RESPONDENT'S JOB**
   e.g. dutles, tasks

4. **SKILLS REQUIRED IN JOB**
   e.g. competencies or knowledge and skills required

5. **SKILLS POSSESSED BY RESPONDENT**
   e.g. competencies or knowledge and skills possessed

6. **PERCEIVED TRAINING NEEDS**
   e.g. skill or knowledge areas requiring training

QUESTIONNAIRE-BASED METHODS

Strengths:

- economical for large numbers of respondents
- consistent interpretation of questions
- data is easy to analyse
- high level of confidentiality possible

Weaknesses:

- samples are often not representative
- rates of return often low
- does not usually allow for clarification of question
- unsuitable for respondents with low literacy skills

GROUP PROCESS METHODS

Strengths:

- **Fast**
- **Creative outcomes**
- **Inexpensive**
- **Participative**
- **Analysis and evaluation of data performed by group**

Weaknesses:

- **Can be time consuming (for a large group)**
- **Difficult to control**
- **Inconsistent results**
- **Qualitative rather than quantitative data**
- **Limited by collective knowledge of group**

SELECTION OF TECHNIQUE

EIGHT FACTORS TO CONSIDER:

1. SPECIFICITY	• part of organisation • whole organisation • sector of industry • industry wide • across industries
2. SCOPE OF STUDY	• local • regional • state/territory wide • national
3. DEPTH OF INFORMATION	• in depth • superficial
4. SIZE OF POPULATION	• small (less than 100) • medium (100 - 1000) • large (1000+)
5. PACE OF CHANGE	• slow • medium • fast
6. STUDY TIME FRAME	• short (less than 4 months) • medium (4 - 9 months) • long (9+ months)
7. STUDY SENSITIVITY	• low • medium • high
8. COST	• low (- $2000) • moderate ($2000 - 5000) • high ($5000 - 20000) • very high ($20000+)

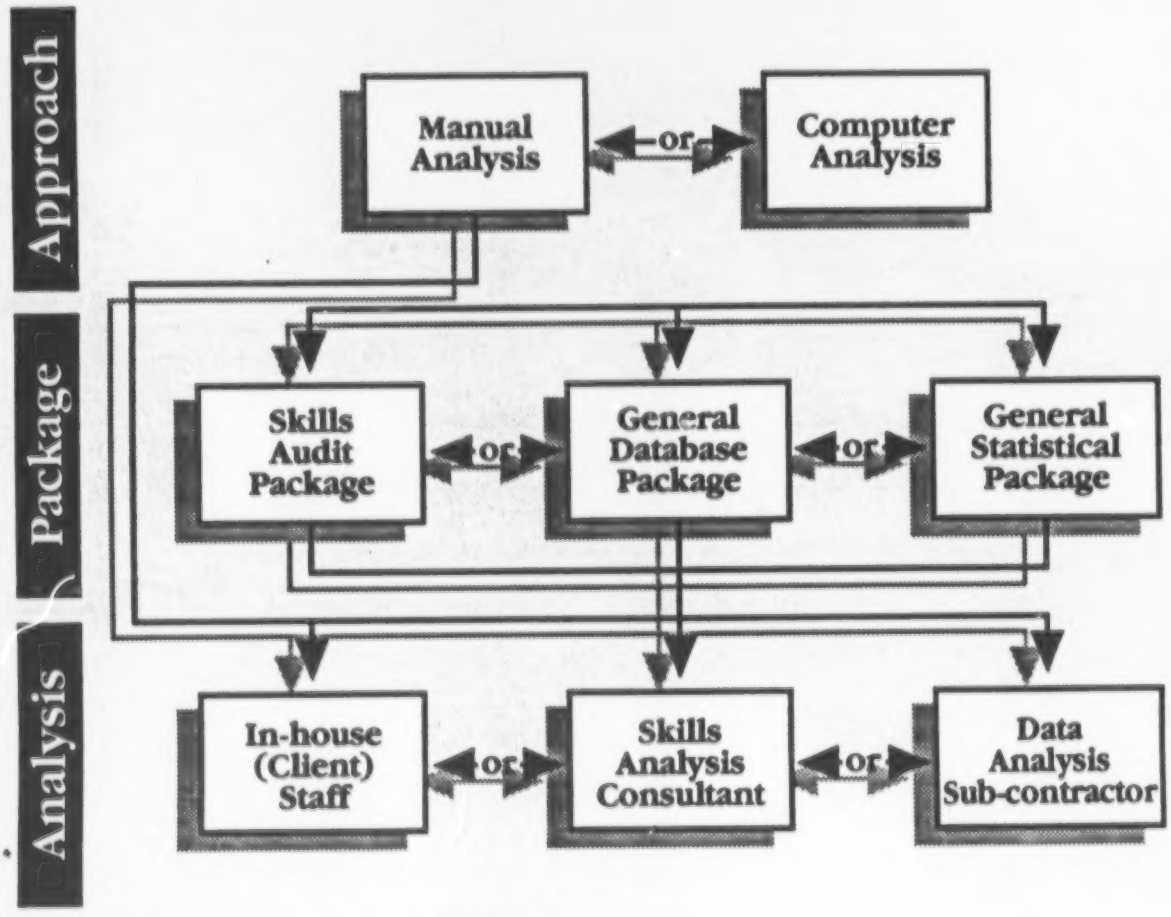
METHOD SELECTION MATRIX

FACTOR	FACTOR VALUE	YOUR REQUIRE-MENTS	TECHNIQUE									
			General Survey questionnaire	CODAP	Delphi	Interview	Nominal group	DACUM	Force field analysis	Search conference	Task analysis	Critical incident technique
SPECIFICITY	part of organisation		●	●	●	●●	●●	●●	●	●	●●	●●
	whole organisation		●●	●	●●	●●	●●	●●	●●	●●	●●	●●
	sector of industry		●●	●●	●●	●●	●●	●●	●	●●	●	●
	industry wide		●●	●●	●●	●●	●	●●	●	●●	●	✖
	across industries		●●	●●	●●	●	✖	●●	✖	●	✖	✖
		MATCH?										
SCOPE OF STUDY	local		●	●	●	●●	●●	●●	●●	●●	●	●
	regional		●●	●	●●	●	●●	●●	●●	●●	●	●
	state/territory wide		●●	●●	●●	●	●	●●	●●	●	●	●
	national		●●	●●	●●	●	●	●●	●	●	●	●
		MATCH?										
DEPTH OF INFOMATION	in depth		●	●	●	●●	●●	●●	●	●●	●	●
	superficial		●●	●●	●●	●	●	✖	●	✖	●	●
		MATCH?										
SIZE OF POPULATION	small (less than 100)		●	●	●	●●	●●	●●	●●	●●	●●	●●
	medium (100-1000)		●●	●●	●●	●	●	●	●	●	●	●
	large (1000 +)		●●	●●	●●	●	●	●	●	●	✖	✖
		MATCH?										
PACE OF CHANGE	slow		●●	●●	●	●●	●	●●	●	●	●●	●●
	medium		●	●	●●	●●	●●	●	●●	●	●	●
	fast		●	✖	●●	●●	●●	✖	●●	●●	●	✖
		MATCH?										
STUDY TIME FRAME	short (<4 months)		●	✖	●	●	●●	●●	●●	●●	●●	●●
	medium (4-9 months)		●●	●	●●	●●	●	●	●	●	●	●
	long (9 + months)		●●	●●	●●	●●	✖	✖	✖	✖	✖	✖
		MATCH?										
STUDY SENSITIVITY	low		●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
	medium		●	●	●●	●●	●	●	●	●	●	●
	high		●	✖	●	●●	✖	●	●	✖	●	●
		MATCH?										
COST	low(- $2000)		●	✖	●	✖	●●	✖	●●	●	●●	●●
	moderate ($2000-5000)		●	●	●●	●	●●	●	●●	●●	●	●
	high ($5000-20000)		●●	●	●●	●	●	●●	●	●	✖	✖
	very high ($20000 +)		●●	●●	●	●●	✖	●●	✖	✖	✖	✖
		MATCH?										
SPECIAL FEATURES	List your special requirements:		The special features of each technique are given in Chapter 8 of the manual									
		MATCH?										
TOTAL MATCHING												

Note: ●● = highly suitable ● = suitable ✖ = unsuitable

DATA ANALYSIS

CHOICES INCLUDE:



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HANDOUT 5.2

SKILLS AUDIT DATA ANALYSIS OPTIONS

	SMALL STUDY (less than 20 people)	MEDIUM STUDY (20 to 100 people)	LARGE STUDY (over 100 people)
Manual Analysis	R	N	N
Skills Audit Computer package:			
- in-house	P	R	R
- consultant	R	R	P
- sub-contract	N	P	R
General Database package:			
- in-house	P	R	R
- consultant	R	R	P
- sub-contract	N	P	R
General Statistical package:			
- in-house	P	P	R
- consultant	R	P	P
- sub-contract	N	P	R

P = Possible option
R = Recommended option
N = Not recommended

SKILL MATRIX FORMAT

FOR PEOPLE, JOBS AND COURSES

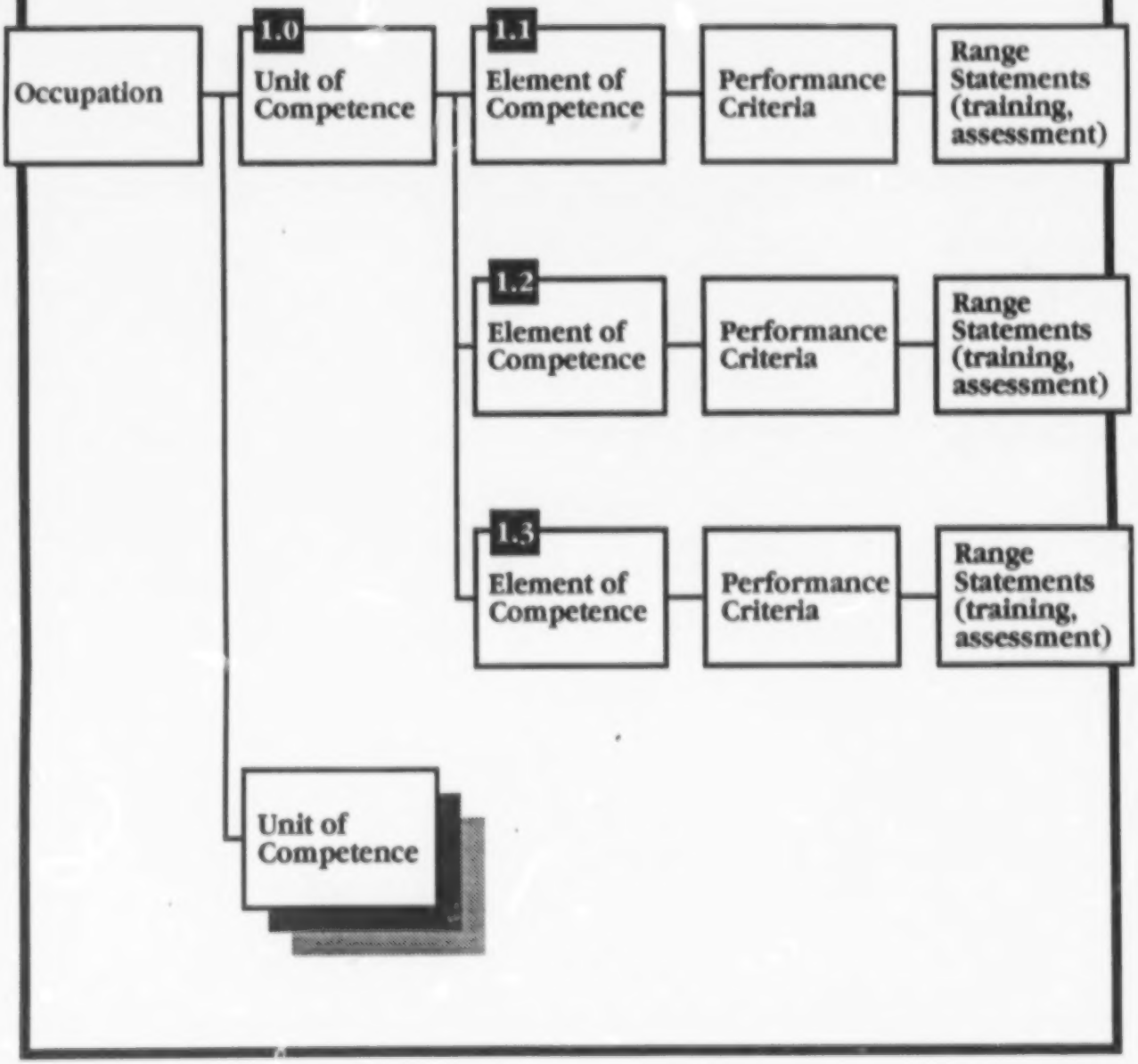
SKILLS/ COMPETENCIES	PEOPLE		JOBS			TRAINING COURSES		
	X	Y	1	2	3	a	b	c
A1	/	X	/	/	/	/	/	/
A2	/	X	/	/	/	/	/	/
A3	/	X	/	/	/	/	/	/
A4	/	X	X	X	/	/	/	/
A5	/	X	X	X	/	/	/	/
B1	/	/	/	/	X	/	X	/
B2	/	/	X	/	/	/	X	/
B3	X	/	X	/	/	/	X	/
B4	/	/	/	X	X	/	X	/
B5	X	/	/	X	X	/	X	/
B6	/	/	X	/	/	/	X	/
B7	/	/	/	/	/	/	X	/
C1	X	/	X	/	/	/	/	/
C2	X	X	/	X	X	X	/	X
C3	X	/	X	X	X	X	X	/
C4	/	X	X	/	/	/	X	X
D1	/	/	X	/	/	X	/	X
etc								

NOTES: 1. Key:

/ = skill possessed or skill required for job or skill developed in course

X = skill not possessed or skill not required for job or skill not developed in course.

PRESENTATION OF COMPETENCY STANDARDS



PROJECT PLANNING

TOPICS

NEGOTIATION

PREPARING PROPOSALS

PROJECT COSTING

PROJECT MANAGEMENT/IMPLEMENTATION

PROJECT TEAMS

CONSULTATIVE COMMITTEE

CLIMATE SETTING

NEGOTIATE

to talk

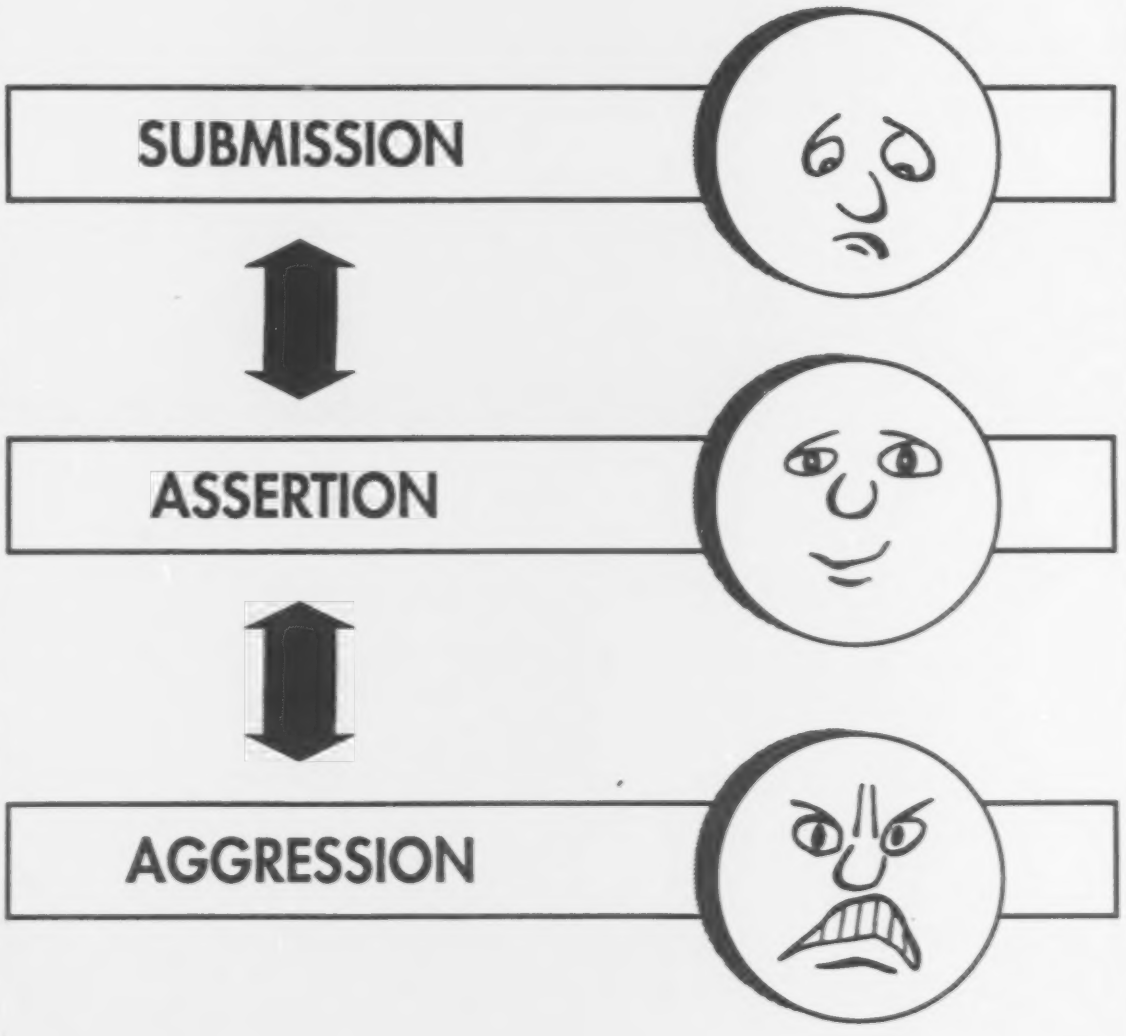
to achieve agreement

NINE PRINCIPLES OF NEGOTIATING

1. **PREPARATION**
2. **CLARIFY YOUR POSITION AND THEIR'S**
3. **LISTEN ACTIVELY**
4. **REMAIN OPEN**
5. **PROVIDE HELP FOR OTHER PARTY**
6. **TRADE**
7. **BE PREPARED TO APOLOGISE**
8. **DON'T ISSUE ULTIMATUMS**
9. **SET ACHIEVABLE TIME LINES**

ASSERTION IS A BETTER APPROACH THAN SUBMISSION OR AGGRESSION

ASSERTION IS THE MIDDLE ROAD



PEOPLE ARE MORE *ASSERTIVE*

WHEN:

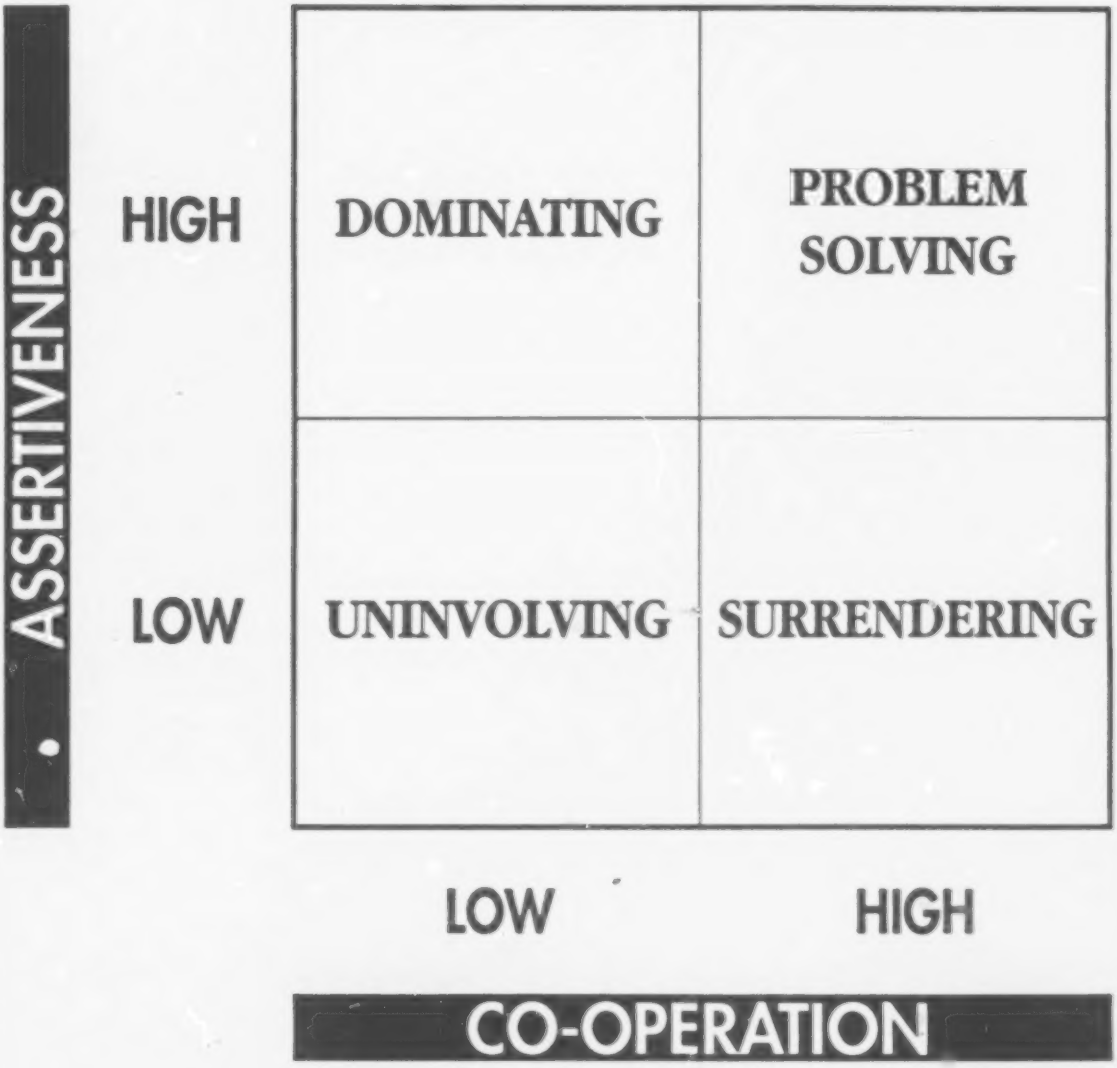
1. **THE ISSUES ARE IMPORTANT TO THEM**
2. **THEY ARE CONFIDENT IN THEIR KNOWLEDGE**
3. **THINGS ARE GOING AGAINST THEM**
4. **THEY FEEL THEY CONTROL THE POWER**

PEOPLE *CO-OPERATE*

WHEN:

1. **THEY RESPECT THE OTHER PARTY**
2. **THE RELATIONSHIP IS VALUABLE**
3. **THEY NEED THE OTHER PARTY TO HELP CARRY OUT THE DECISION**

NEGOTIATING STYLES



PROJECT COSTING

TWO KEY PRINCIPLES:

- **use standard formulae to ensure that costing is both accurate and fast;**

- **the work done on costing should provide a sound basis for projet management.**

PROJECT COSTING

SEVEN STEP PROCEDURE

1. STATE PROJECT OBJECTIVES
2. DESCRIBE PROJECT METHODOLOGY
3. BREAKDOWN INTO TASKS
4. ESTIMATE CONSULTING DAYS FOR EACH
5. CHART SEQUENCE AND DURATION
6. ESTIMATE COST OF ITEMS
7. SET OUT BUDGET

HANDOUT 6.10

PROJECT: PROJECT ACTIVITY																														
DAYS PER MONTH																														

HANDOUT 6.11

PROJECT SCHEDULE

1990

PROJECT: HP12	JANUARY					FEBRUARY					MARCH					APRIL					MAY					JUNE				
PROJECT ACTIVITY W/B	4	11	18	25		1	8	15	22		1	8	15	22	29	5	12	19	26		3	10	17	24	31	7	14	21	28	
1. Initial consultation																														
2. Group processes																														
2.1 Components section																														
2.2 Fabrication section																														
2.3 Orders/ design																														
3. Develop questionnaire																														
4. Survey																														
5. Data analysis																														
6. Report writing																														
CONSULTATIVE COMMITTEE			X			X							X								X				X					
DAYS PER MONTH																														

PROJECT COSTING

CHECKLIST OF MAIN BUDGET ITEMS

1. PROJECT STAFF

   - Project manager
   - Project officers

2. SUPPORT STAFF

   - Typing
   - Clerical/administrative
   - Design
   - Editing

3. SALARIES ON-COST

   (% of total of 1 & 2)

4. TRAVEL AND ACCOMMODATION

   - Fares
   - Car/taxi
   - Per diem

5. DATA PROCESSING

6. POSTAGE

7. TELEPHONE

8. PRINTING AND PHOTOCOPYING

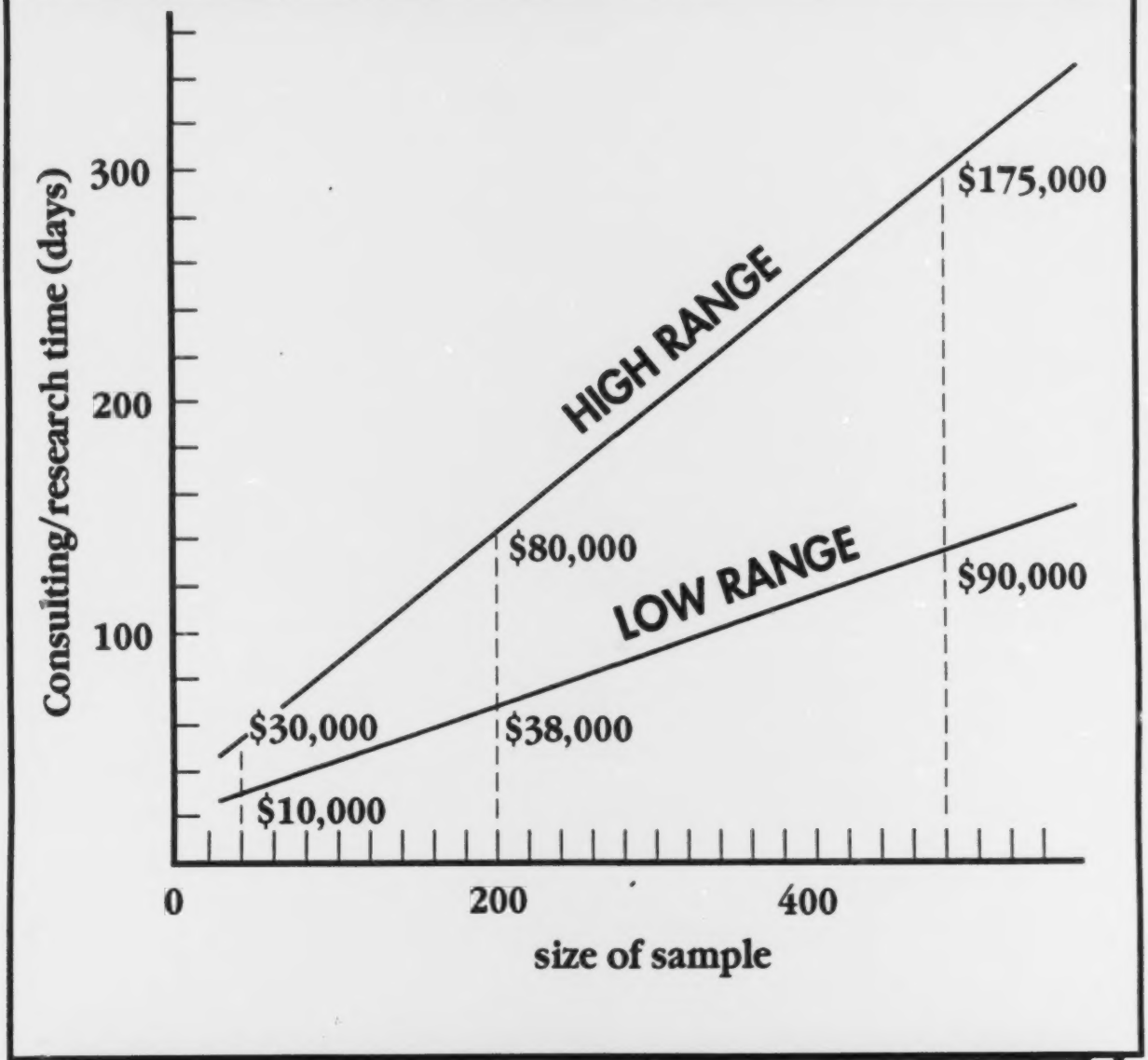
9. OVERHEADS

EXAMPLE OF A PROJECT BUDGET

ITEM	PART A ONLY	PART B ONLY	PARTS A & B
Project staff:			
- project manager	9 700	13 000	19 500
- project officer 1	32 500	12 500	39 500
- project officer 2	3 000	18 000	21 000
- programmer	1 000	*10 000	10 000
Support staff:			
- typing and clerical	9 250	10 000	18 250
- administrative	1 000	1 200	2 100
Data processing	2 500	15 000	17 000
Travel and accommodation	9 600	11 000	17 000
Postage/telephone	3 450	5 300	8 650
Printing and workshop materials	3 000	14 000	17 000
TOTAL	$75 000	$110 000	$170 000

* **This amount will depend on the required amount of integration with existing data systems in the organisation.**

COSTS OF SKILLS AUDITS



HANDOUT 6.15

CASE STUDY TWO (PART A)

To examine:

1. **Skills required in current jobs**
2. **Skills possessed by people in each job classification**
3. **Job design.**

Assumptions

a. **A large company specialising in quarry, mining and oil transportation.**

b. **Eight sites through Australia with the following job classifications:**

Riggers
Electrical mechanics
Maintenance fitters
Instrument makers

c. **Many jobs within the company require up to four people to complete basic tasks because of demarcations.**

d. **The company wants to assist all employees to be sufficiently skilled to complete whole jobs safely.**

e. **Workers are often required to work in isolated areas.**

f. **Over the eight sites there is a total of 95 employees in these job classifications**

g. **All 95 employees should be given the opportunity to participate in a group process (e.g. a one-day DACUM) or a survey (interview or self-completion questionnaire).**

h. **The company will allow a total of three days time for each employee on job redesign project teams. Up to four employees on each of four teams would be acceptable.**

Some organisational culture

- **The company wants to increase efficiency and keep present number of employees.**
- **The company wants to address structural efficiency principles while providing a clear career path for all workers, both trade and non-trade.**
- **The company wants to enhance skills of all workers.**
- **The workers feel they have many basic skills which cannot be used under the present award structure.**
- **A consultative committee has been formed.**

Your task:

Prepare a project proposal which includes budget and project schedule.

PROJECT MANAGEMENT

Three tools for effective monitoring and control of projects:

- **Budget and expenditure table**
- **Project schedule**
- **Person-days chart**

HANDOUT 6.17

MONTH / PROJECT												
	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL
ADMINISTRATION												
LEAVE												
PUBLIC HOLIDAYS												
TOTAL DAYS/MONTH												

HANDOUT 6.18

PERSON - DAYS FOR PROJECT HP12

MONTH	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
PROJECT HP12	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL
Joe Bloggs	4		4		4		4		4		2	
CUMULATIVE	(4)		(8)		(12)		(16)		(20)		(22)	
Cliff Edge	2		10		8		4		1		0	
CUMULATIVE	(2)		(12)		(20)		(24)		(25)		(25)	
Sara Flye	1		2		4		12		8		0	
CUMULATIVE	(1)		(3)		(7)		(19)		(27)		(27)	
John Walker	0		0		2		7		4		1	
CUMULATIVE	(0)		(0)		(2)		(9)		(13)		(14)	
ADMINISTRATION												
LEAVE												
PUBLIC HOLIDAYS												
TOTAL DAYS/MONTH	7		16		18		27		17		3	
CUMULATIVE	(7)		(23)		(41)		(68)		(85)		(88)	

HANDOUT 6.19

PERSON - DAYS FOR JOE BLOGGS

MONTH	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
PROJECT HP12	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL
HP12 needs analysis	4		4		4		4		4		2	
HP15 XYZ project	5		10		14		12		5		0	
New project	0		0		0		0		10		8	
Staff development	0		3		0		0		0		2	
ADMINISTRATION	2		3		3		3		3		3	
LEAVE	8										5	
PUBLIC HOLIDAYS	2						2				1	
TOTAL DAYS/MONTH	21		20		21		21		22		21	

CASE STUDY TWO (PART B)

Your group was successful with its proposal and you have been awarded the contract. Congratulations! Now plan the project in more detail by:

- **preparing a person-days chart for the project;**
- **set appropriate targets for the team and team members for the first two months of the project.**

Three people are to form the project team as follows:

- **Hugh - an expert in group processes and job redesign**
- **Dwight - an expert in surveys and questionnaire designs**
- **Lewis - an expert in data analysis**

PROJECT TEAMS

CHARACTERISTICS OF EFFECTIVE TEAMS:

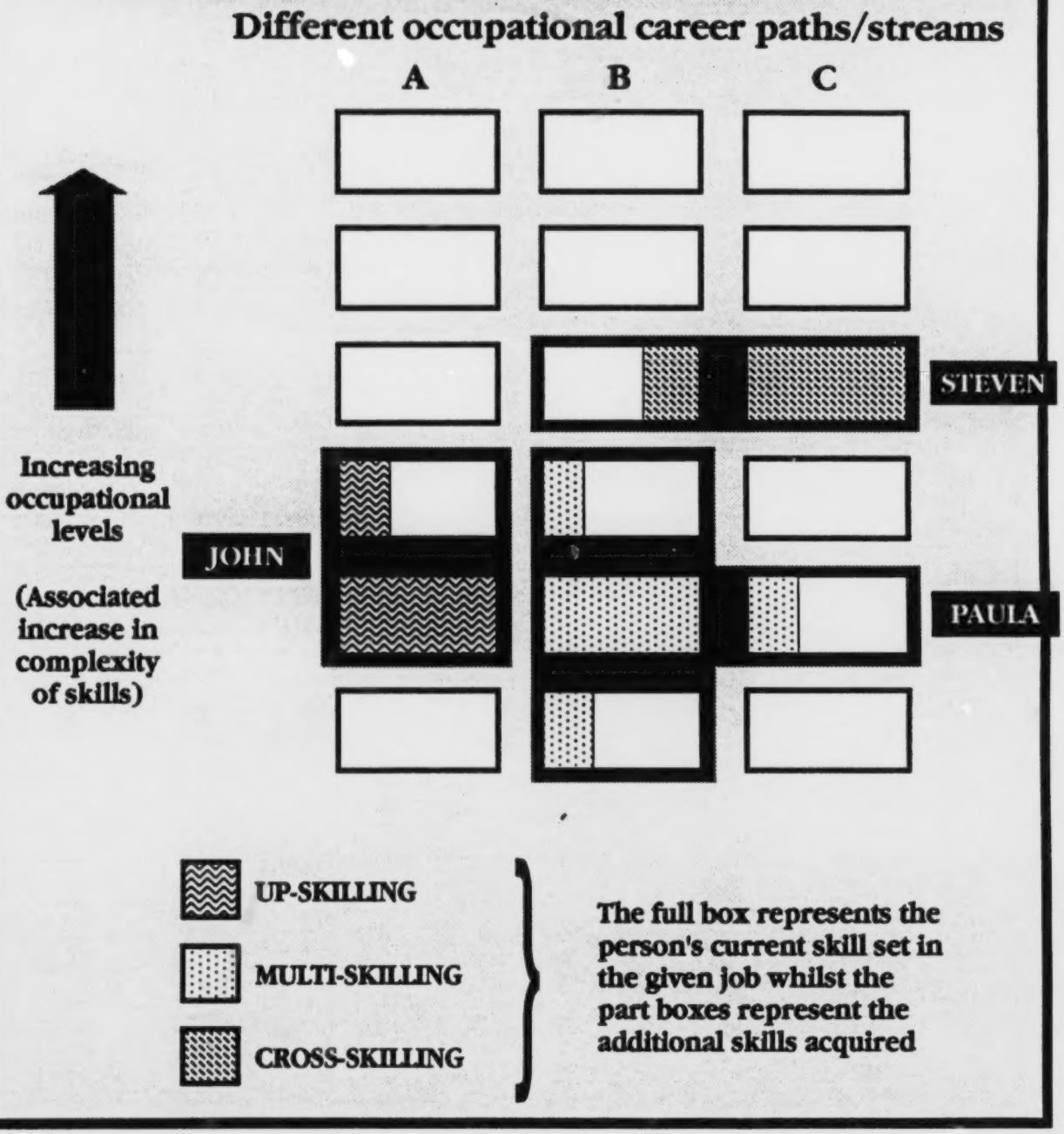
1. Team members know and share leader's views.
2. All group members have respect for each other.
3. Individuals desire to be part of a team.
4. Open communication occurs.
5. Common sense of pride in the team.
6. When conflict occurs it is handled constructively.
7. Co-operation is encouraged and actively fostered.
8. Group decision-making and problem-solving occurs.
9. Group works together in a relaxed manner.
10. Encouragement and credit for team effort is freely given.
11. All members share a common goal and mission.

PROJECT TEAMS

WHEN WORKING WITH PROJECT TEAM MEMBERS AIM TO:

1. **Overcome attitudinal problems**
2. **Develop compatibility**
3. **Address skill deficiencies**
4. **Develop a common approach**
5. **Encourage on-going evaluation**
6. **Recognise and deal with stress**
7. **Give team ownership**

WHAT ARE THE DIFFERENCES BETWEEN CROSS-SKILLING, UP-SKILLING AND MULTI-SKILLING?



HANDOUT 7.2

SKILLS ANALYSIS WORKSHOP EVALUATION

NAME (optional) .....

COLLEGE (optional) .....

Please indicate the extent to which <u>you</u> achieved the stated workshop aims.

1 = not achieved at all
2 = partly achieved - not satisfactory to me
3 = mostly achieved - satisfactory to me
4 = fully achieved.

Please comment if you wish to expand on your rating.

WORKSHOP AIMS:

At the completion of the workshop participants will be able to:

		1	2	3	4
1.	**Differentiate between skills audits, skills analysis and training needs analysis**	☐	☐	☐	☐
	.....				
	.....				
	.....				
2.	**State the purpose and uses of each of the above**	☐	☐	☐	☐
	.....				
	.....				
	.....				
3.	**Describe the main techniques of skills analysis and the strengths and weaknesses of each**	☐	☐	☐	☐
	.....				
	.....				
	.....				

		1	2	3	4
4.	**Describe the main methods of analysing data from skills analysis projects and ways of presenting and using the results**	☐	☐	☐	☐

.....

.....

.....

5.	**Use basic principles of project planning and management**	☐	☐	☐	☐

.....

.....

.....

6.	**Prepare project proposals, including itemised project budgets**	☐	☐	☐	☐

.....

.....

.....

7.	**Accept the underlying industrial relations ramifications**	☐	☐	☐	☐

.....

.....

.....

8.	**State ways of dealing with the industrial relations ramifications of such projects**	☐	☐	☐	☐

.....

.....

.....

PART D

Participant Information

SECTION 1

CLIENT EXPECTATIONS & NEEDS

CLIENT EXPECTATIONS

It is crucial to clearly identify the expectation clients have in undertaking a skills audit. A request for a skills audit does not constitute a defined list of services but rather a variable set of needs which in some cases may not constitute what can broadly be called a skills audit. Many of these expectations arise from award restructuring and/or the Training Guarantee requirements.

REASONS FOR INDUSTRY/AWARD RESTRUCTURING

Industry/award restructuring has been undertaken for the following reasons:

- Australia has in recent years been experiencing a worsening situation in respect of the balance of payments. This means that Australia has become both a net importer of goods and services as well as a debtor nation. The situation can only be reversed by increasing the value of exports and reducing the value of imports.

- The value of primary products has been declining relative to processed/manufactured products. There is no longer great potential in increasing the total value of exports through enhanced export of unprocessed agricultural/mining products. Primary products face two major problems. Firstly, there are many producers. Many third world countries rely almost solely on primary produce as a source of exchange. Dramatic improvements in production and extraction often means periods of excess production and low prices. Low prices drive third world countries to produce even more to maintain their revenue. Secondly, there are few buyers of primary produce which gives them a competitive advantage keeping prices low.

- A healthy manufacturing sector is essential to redress the problems of balance of payments not only to earn money through exports but also to compete against imports.

- A viable manufacturing sector makes Australia a technology-oriented nation and enhances it being a producer of technology rather than a consumer. Particularly this allows Australia to have a research and development base which in turn has multiplier effects in sectors such as vocational education, consultancy services and superior competence in using technology. In total, this gives Australia a higher profile in the Asia/Pacific region and increases its share of economic opportunities.

- Whilst manufacturing is an essential part of the economy, it cannot be supported through protection as this leads to distortions and a lack of competitiveness. For this reason most protection is being removed, forcing enterprises to be competitive through attention to the right products/markets and productivity increases.

- Productivity increase is essential for the well-being of Australian Industry. Constraints reduce the productivity of the workforce across all enterprises by about 25% (Hilmer, pp 124-125).

KEY FACTORS WHICH HAVE REDUCED THE POTENTIAL FOR PRODUCTIVITY INCREASE

Given that productivity increase for manufacturing and other industries is going to be the essential link to enhanced economic status for Australia, industry/award restructuring aims at overcoming the following factors.

- Direct overmanning. A tendency to have more people on a given piece of work than what is absolutely necessary.

- Demarcation. Having limits placed on the carrying out of tasks within a piece of work because of a person's job classification and/or union coverage. As a practice it becomes wasteful when a person in a job classification ceases work, despite being able (or having the potential with training) to perform the task and waits whilst a person in another classification performs the task.

- Poor work organisation. The principles of 'scientific management', developed by Frederick Taylor at the turn of the century along with concepts of mass production still influence many enterprises in their work organisation. Work organisation based on these concepts (often defined as Taylorist) is typified by:

  - a clear separation between planning/design and execution. The design office and management/supervisory levels develop all plan and instructions about how a job will be undertaken and submit these to the shopfloor.

  - the execution of work divided into discrete skills/tasks sets, each performed by a different person. Each person performs a repetition of the same skills/tasks set over a set period without developing a wholistic perspective of the entire process.

  - no decision making taking place at the bottom levels. The enterprise structure displays a hierarchical pyramidal shape with a number of layers with increasing decision making as one goes up the pyramid.

  - poor attention to training. The divisibility of skills/tasks sets is

undertaken to use unskilled labour wherever possible. By distinguishing between skilled and unskilled training, expenditure on training is primarily devoted to the skilled worker and usually through an apprenticeship or traineeship rather than on-going training.

Another problem for productivity increase pertinent to TAFE systems has been inappropriate training systems. TAFE has followed industry structures in the way courses have been designed by following existing awards and demands made by industry and unions. Formal training has been both too narrow because of its emphasis on defined occupational areas (themselves defined by demarcation) such as sheetmetal work, boilermaking and welding and too broad because it has equipped staff for skills across many enterprises at the expense of enterprise specific skills (i.e. those skills required in a given enterprise such as specific computer software, drawings etc.).

IMPLICATIONS OF INDUSTRY/AWARD RESTRUCTURING

Change in industry is being propelled by both market forces and government policies. Many of the previous work practices and organisational structures are being questioned with new ways of operating being considered. When requesting a skills audit, the client may already be seriously considering introducing changes. Some of the possibilities include:

. introducing new labour saving devices

. reorganising the enterprise to create a flatter structure with greater responsibility for decision making going to work teams

. reducing the number of staff

. re-designing jobs to encompass a greater variety of work tasks

. changing the requirements for staff employed

. introducing training for all staff

CORPORATE GOALS/STRATEGIC PLANS

The conduct of skills audits, training needs analysis or any other workplace research should be in the context of both where the given enterprise is headed in terms of its products/services and market along with the broad means by which these will be achieved. The corporate goals/strategic plans should state:

. the products/services the enterprise will expand into, maintain, reduce or eliminate over a five year period.

- changes to market segments over a five year period.

- the enterprise's current and future share of the total product service (i.e. how much of the components of the product/service will be undertaken elsewhere e.g. packaging).

- what new technologies will be adopted in the workplace.

- what changes will take place in respect of work reorganisation/job redesign.

- what are the anticipated changes to the skill sets of staff as the consequence of an award change.

- what skills strategy (i.e. the means to achieve the required skills in the enterprise) is in place.

Corporate goals (mission statements) and strategic plans may not always be available. It may be necessary therefore to conduct a vision setting exercise to obtain the information above.

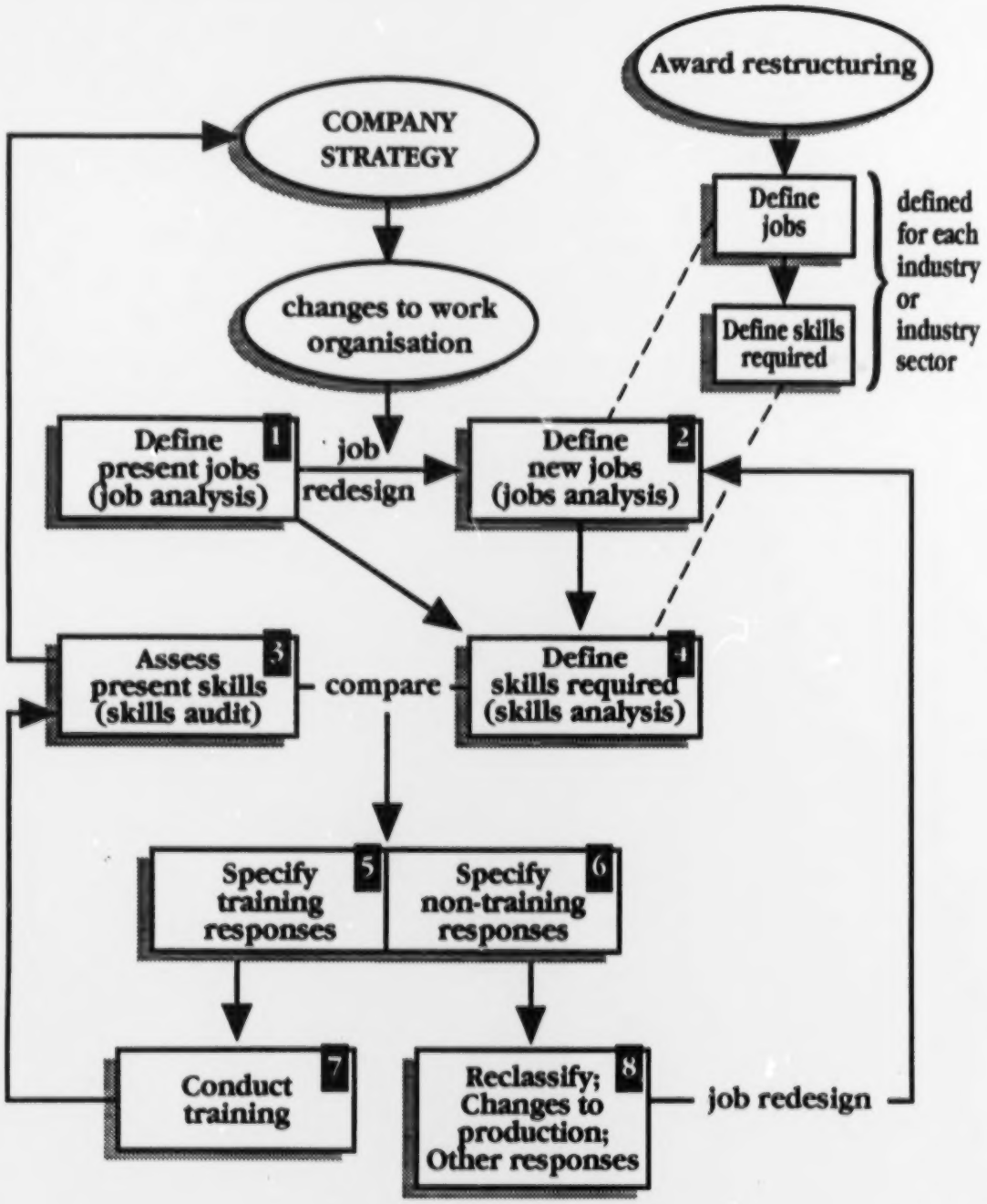
SECTION 2

TYPES OF PROJECT

This section describes the process of skills audits and related processes, while Section 4 describes the techniques of collecting data. The main processes covered in this section include:

Process	Some Key Outcomes
Work process analysis	Description of technical sub-system Work flow diagram Workplace layout diagram
Job analysis	Job Description Duty and Task inventory Occupational/job tree
Skills analysis	Skills inventory Skills matrix
Skills audit	Skills profile/skills register
Training needs analysis	Training specification
Developing Standards	Set of national training standards
Changing work organisation	Charts describing new work organisation
Job redesign	New job descriptions New skills matrix Job matrix with career paths and integrated training

These processes may be used by a company as part of its (human resources) strategy to improve its competitive position. The processes are closely related to each other, as illustrated in Figure 2.1 which shows most of the processes listed above. Each process will now be briefly described.



Note: *All boxes refer to the company except for the two boxes in the top right-hand corner.*

FIGURE 2.1 **THE ELEMENTS OF SKILLS AUDITS/SKILLS ANALYSES AND THEIR RELATIONSHIP. (from Hayton 1990 p.30)**

Work process analysis

Work process analysis examines the technical sub-system of the work, including the workplace layout, jobs, technology, operations, procedures, material flow and information flow. Technical issues and problems may be identified to provide a focus for the analysis. All organisations may apply this analysis, including manufacturing and service organisations. Techniques include **work study** approaches and socio-technical systems analysis.

Outcomes include a description of technical sub-systems, work flow diagrams and workplace layout diagrams. This information feeds into work organisation change and job redesign.

Job analysis

Job analysis examines the human side of work in terms of the duties and tasks to be performed by the person working in each job. When a range of job types is to be studied, the term *occupational analysis* is used. As well as looking at the duties and tasks currently performed, job analysis may consider likely future duties and tasks to be performed.

Outcomes of job analysis and occupational analysis include:

- a task inventory (a listing of all the tasks to be performed, and usually grouped into duties);
- a job description (a description of the main duties to be performed, and may include a statement of the responsibility and authority of the job and an outline of the abilities required of the person performing the job);
- an occupational/job tree (a diagram that indicates the jobs which have some similarity within an occupation - see diagram below).

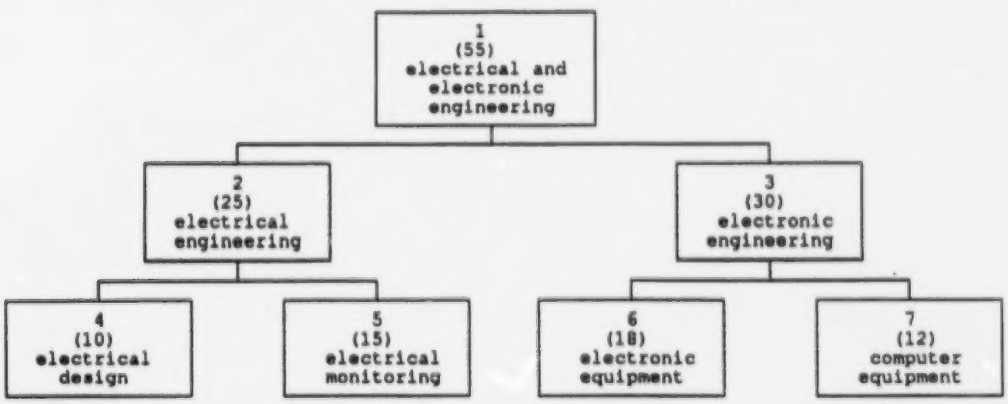


FIGURE 2.2 OCCUPATIONAL/JOB TREE (from Hayton 1987, p.6)

The techniques of job analysis may involve one or more of the data collection methods discussed in Section 4. The main approaches include:

- organisational records
- interviews
- questionnaires
- observation
- group process methods

While the data collection approach may be similar to that used for a skills audit or skills analysis, the focus is different. For a job analysis, the key question may be: "What are the duties and tasks that you perform in your job?" whereas for a skills audit the key question may be: "What knowledge, skills and attitudes do you possess?" and for a skills analysis the key question may be: "What knowledge, skills and attitudes are required in your job?"

An occupational analysis or job analysis may involve five steps as shown in the diagram below.

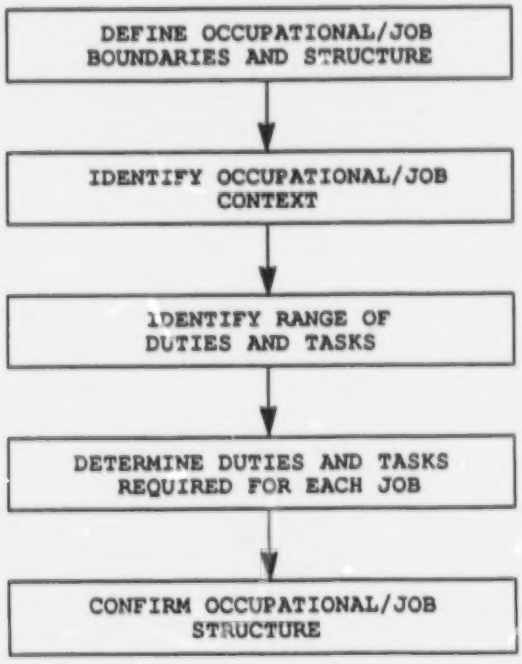

DEFINE OCCUPATIONAL/JOB BOUNDARIES AND STRUCTURE
IDENTIFY OCCUPATIONAL/JOB CONTEXT
IDENTIFY RANGE OF DUTIES AND TASKS
DETERMINE DUTIES AND TASKS REQUIRED FOR EACH JOB
CONFIRM OCCUPATIONAL/JOB STRUCTURE

FIGURE 2.3 STEPS IN AN OCCUPATIONAL/JOB ANALYSIS (From Hayton et al 1989, p.8)

The first two steps may be regarded as preliminary to the main analysis but are quite important.

If only a single job is under consideration then it is likely that the occupational boundaries, structure and context will be well established. Whatever the situation, it is necessary to have this information.

If defining the occupational boundaries and structure the following aspects should be included:

- name(s) of occupation
- range of jobs within the occupation
- structure of jobs within the occupation
- typical career paths
- major job functions
- occupational trends

Occupational context would include the following aspects:

- overlap with related jobs and occupations
- industry trends
- number of people employed
- education and training
- legal requirements

In the next step of identifying the range of duties and tasks, it is important that all duties and tasks are listed. When changes are likely, it is wise to list the future tasks envisaged at the same time. The inventory of duties and tasks could be developed by using current records or reports, by a group process of experts (e.g. DACUM), by interviews of job incumbents and their supervisors, or by observation.

Following this it is necessary to determine which duties and tasks are required for each job together with other relevant task level data such as relative time spent on each task. A wide range of task variables may need to be considered. For example:

- performed/not performed
- relative time spent on each task

- frequency of performance
- actual time spent on task
- contribution of task to job
- importance of task
- consequences of inadequate performance to task
- difficulty of learning task

Data on the duties and tasks required may be collected on one or more of the five techniques described in Section 4. For medium to large size samples, the data collected is usually analysed with the help of an appropriate computer program.

The final step of confirming the occupational/job structure involves using the data obtained in the previous step to confirm or amend the occupational/job tree (see example in Fig. 2.2). This could be achieved by a cluster analysis program if computer analysis is being undertaken, or by judgements based on the results of the previous steps.

SKILLS ANALYSIS

A skills analysis is a systematic process which identifies the skills or competencies required for a particular job. Analysis of competencies may occur instead of skills in the following cases:

. development of competency standards;

. development of competency-based training curricula; and

. development of competency-based assessment instruments.

The usual outcomes of a skills analysis project include:

. a skills inventory or skills register; and

. a skills matrix.

SKILLS AUDIT

A skills audit is a systematic process which identifies the skills or competencies held by an individual or group. Other more inclusive definitions exist, especially as skills audits are often associated with the context of award restructuring. The main outcomes of a skills audit project may include:

. a skills profile (for an individual or group);

. matches of individuals with particular jobs.

TRAINING NEEDS ANALYSIS

A training needs analysis is the identification of the differences between the skills or competencies held by an individual or group, and the skills or competencies required for the job. (The term skills is used here in the broad sense to include knowledge, (manual) skills and attitudes.)

A Training Needs Analysis may incorporate job analysis, skills analysis and skills audit.

DEVELOPING STANDARDS

Training standards are being developed in Australia to provide a basis for competency-based training and assessment. The standards will be useful for both off-the-job training (such as at a TAFE college or a skill centre) and on-the-job training.

Details of what is meant by standards and how they may be developed are given in Section 7. Standards are mentioned here because the development of standards is one of the important processes that may be undertaken which are linked to skills analysis. For example, standards may be developed after a skills analysis by:

- listing all the tasks and skills required for the job;
- considering all tasks and skills which are **outcomes** rather than **processes**;
- determine, for each task or skill outcome, the standard of performance required; and
- identify, for each, the context and conditions under which the performance occurs.

Examples are given in Section 7.

CHANGE TO WORK ORGANISATION

The most important change occurring now through industry restructuring is the change in work organisation. The main form of work organisation used in Australia and other industrialised nations up to now was a pyramid structure with a strict hierarchy. This form was most apparent in large organisations which had as many as ten or more levels in the hierarchy. This form was reinforced by the management approach developed by Frederick Taylor in the 1880s and 1890s. This approach, called 'Taylorism',

involves:

- a strictly hierarchical work organisation;
- deskilling of work by progressively narrowing the scope of each job;
- analysing and then standardising the methods used in each job;
- strict supervision of workers at every level.

Taylorism is described in more detail in the box below. Though modified over a period of time, this management approach was successful for many years in achieving better productivity and efficiency. However, it is increasingly ineffective in the new context of sophisticated markets and new technology in the 1990s.

TAYLORISM

Frederick Winslow Taylor, an American industrial engineer, developed a system of work which suited the large factories resulting from the industrial revolution. He developed his principles of management in the 1890s, and published 'The Principles of Scientific Management' in 1911. The key features of the approach are:

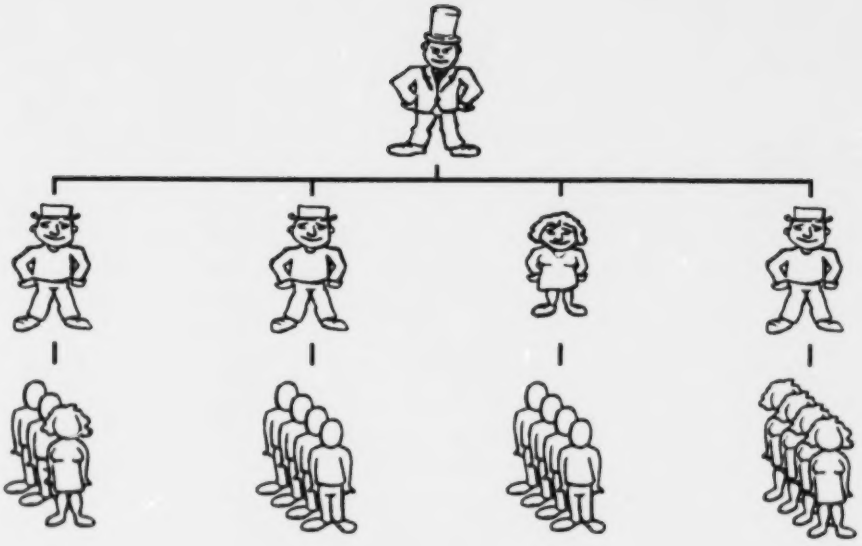
- *strict hierarchical organisational structure;*
- *narrowly defined jobs;*
- *narrow range of skills required to perform each job;*
- *standardisation of methods by precise specification of every task;*
- *factory floor workers cut off from decision making;*
- *discouragement of social interaction among workers;*
- *authoritarian relations within the hierarchy;*
- *strict supervision of workers.*

The following quote from his work describes the underlying attitude:

"Under our system, a worker is told just what he is to do and how he is to do it. Any improvement he makes upon the orders given him is fatal to his success."

This approach generally obtained improved cost efficiency but resulted in very low job satisfaction and loss of job control by the people at the factory floor level. They were not allowed to contribute ideas or suggestions for improvement, and had no say in the management of the organisation. "Park your brains by the door" was the catchphrase. The approach is illustrated in the following diagram.

Taylor's principles were applied to manufacturing and non-manufacturing organisations, both large and small. The approach, though modified over time, is still widely used today in industrial countries, particularly in larger organisations.



In manufacturing, Henry Ford early this century successfully added to Taylorism the features of:

- *standardisation of products;*
- *large volume/low cost marketing;*
- *flow-line assembly,*

to give an approach that has been widely applied in industrialised countries this century. This approach to manufacturing is often referred to as 'Fordism'.

More recently, Taylorism and Fordism have been replaced by new forms of work organisation and manufacturing approach in a small but increasing number of enterprises in Europe, North America and Australia.

Many organisations now acknowledge the advantages of 'integrated' types of work organisation which:

- place a higher value on the contribution of **all** people in the workforce;
- rely on a more highly skilled workforce;
- are more integrated, with better communication and smaller organisational units.

One way to achieve better communication is to have a flatter management structure with few hierarchical levels.

To achieve smaller organisational units, large enterprises are being broken down into smaller business units, though these units may still be loosely associated. Also, even within small organisations, teams may be formed to perform a defined set of related tasks. These teams are effectively "organisations within an organisation". The box below describes the concept of integrated work organisation in more detail.

In manufacturing, computer technology and integrated types of work organisation are being used to improve communication between machines and people. This approach has been called 'integrated manufacturing'. Some Australian and overseas manufacturers have implemented integrated manufacturing approaches.

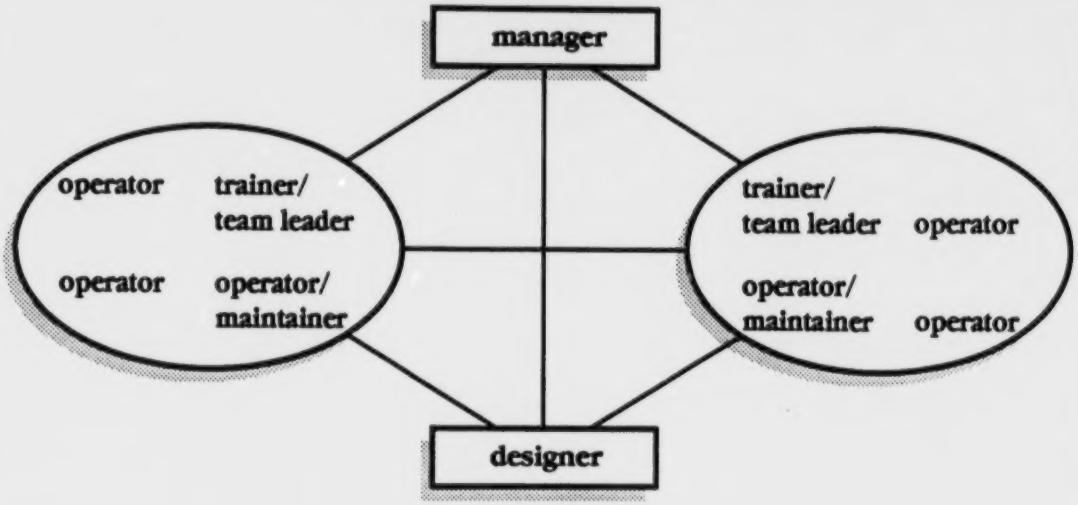
INTEGRATED TYPES OF WORK ORGANISATION

The typical manufacturing or service operation of today is surprisingly complex. There is complexity in the flow of materials, products and information between different departments in the organisation. (Think of the number of words transferred in one day within, to and from your own organisation, by paper, by computer or spoken.)

To respond quickly to market forces, this complexity must be reduced and the whole organisation must act as an integrated body. This may be achieved by integrating machines, people, systems and procedures. The people aspect of integration may involve the following approaches to work organisation:

- *flatter management structure with fewer hierarchical levels:*
- *skill broadening with less specialisation;*
- *smallness of scale (organisations become based on 'economy of scope' rather than 'economy of scale');*
- *team-work where a small group of workers perform multiple functions.*

When the goal is integration and better communication through most or all of these approaches, an integrated type of work organisation will be the result. A simple integrated organisational structure based on two semi-autonomous teams is illustrated.



The skill requirement for each member of an organisation using this approach is such that there is a need for:

- *a higher level of skill overall;*
- *a broader band of skills (including possible skilling across production - maintenance - design boundaries and across traditional trade boundaries);*
- *better interpersonal and team-work skills.*

Important outcomes of these approaches to work organisation are the ability of the organisation:

- *to use some new technologies more effectively and efficiently, particularly those involving equipment that combines mechanical, fluidic and electronic systems;*
- *to allocate staff to a wider variety of tasks (particularly useful for small organisations);*
- *to use modern concepts of quality management and improvement.*
- *to respond faster and more effectively to market demands.*

Organisations planning to implement integrated types of work organisation may move in a small way in that direction but may come across barriers to change. The present structure of industry in Australia and other Western countries is based on:

- specialisation of the skills of workers;
- the high degree of segmentation of occupations through past industrial awards.

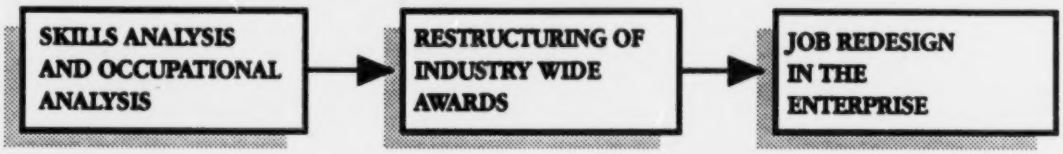
Thus, restructuring also needs to address the skills mix of the workforce and substantial restructuring of industrial awards, and these are discussed below.

JOB REDESIGN

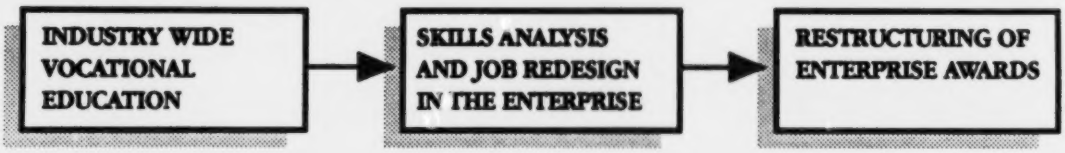
Changes to work organisation will affect the design of each job in the organisation. Every job may need to be redesigned to fit the restructured work organisation.

Job redesign at the enterprise level may **follow** restructuring of industry-wide awards, or may provide the basis for restructuring of an enterprise award. In the latter case, broad 'standards' in the industry of job design and vocational educational qualifications may provide guidelines within which job redesign occurs. These two approaches are illustrated below.

USUAL SEQUENCE FOR INDUSTRY AWARDS:



USUAL SEQUENCE FOR ENTERPRISE AWARDS:


INDUSTRY WIDE VOCATIONAL EDUCATION
SKILLS ANALYSIS AND JOB REDESIGN IN THE ENTERPRISE
RESTRUCTURING OF ENTERPRISE AWARDS

Too often in the past, job design and redesign was based only on the technical aspects of production or operational processes, such as 'minimum cycle time' for a task and 'optimum person-machine interaction'. In addition to technical aspects, job design needs to take account of human aspects, such as job satisfaction, range of skills required, and level of autonomy of the worker.

An approach which considers both aspects of job redesign, human and technical, is called a *socio-technical* approach.

When considering the **human** aspects of job redesign, current job may be analysed to provide a detailed listing of the tasks performed (see 'Job Analysis' in this section). In addition the skills required to perform the

current jobs may be analysed to provide a detailed listing of skills required (see 'Skills Analysis' in this section).

In addition to the tasks and skills required, other information should be used to guide job redesign. This may include:

- process analysis (discussed earlier);
- award restructuring and industry standards;
- the overall skills strategy of the enterprise.

Figure 2.4 indicates these items of information that may be used for job redesign.

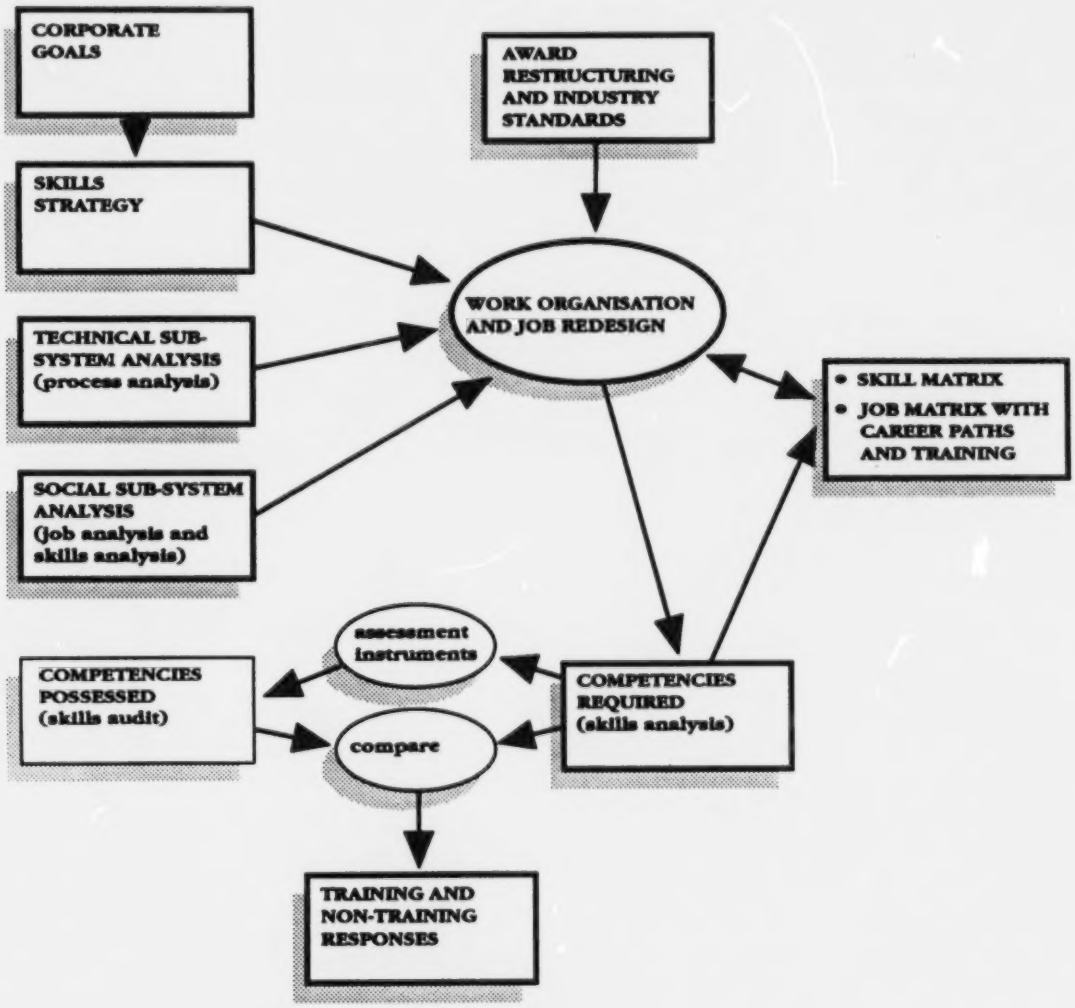


FIGURE 2.4: FLOW CHART OF A COMPETITIVE STRATEGY FOR HUMAN RESOURCES

When undertaking a job redesign project, a number of principles of good job design could be considered. Some of these job redesign principles are listed in the following. The application of some of these principles to an Australian manufacturing company is described in the box on the Palila Clothing Company. These principles have been applied to service organisations, including the Australian Taxation Office. In particular, the keyboard operations jobs have been redesigned extensively and work has been reorganised as part of the restructuring at the Australian Taxation Office.

JOB REDESIGN PRINCIPLES

The following human and technical principles of job redesign have been suggested by Peter Higgins and others:

- *the concept of closure, where a team of workers complete a whole series of tasks (e.g. the assembly of a car component), rather than performing one small repetitive task;*
- *the inclusion of control and monitoring tasks, whereby workers are delegated the responsibility for controlling the work-flow and checking production both quantitatively and qualitatively;*
- *the opportunity for task variety, where workers are given the choice to move between tasks;*
- *minimum specification of production or operation objectives by management, so that the operators may choose the details of how the job is performed;*
- *self-regulation, where workers have the freedom to choose how they accomplish their production objectives; and are offered training in the technical and team skills needed for a self-regulation approach;*
- *co-operative job structures which encourage employees to use the widest possible range of skills from within the same work group;*
- *rapid feedback on performance;*
- *responsibility for own tools, equipment and territory;*
- *the monitoring and control of errors, waste and variation must be as close to their point of source as possible; and*
- *reduction of errors, waste and variation to reduce the level of supervision and control.*

To consider the **technical** aspects of job redesign, Richard Curtain and Neil Watson suggest that the area, jobs and technology concerned must be defined, then a list of the technical problems needs to be prepared. The methods of analysis may include:

- methods study, including workplace layout and process analysis;
- work measurement.

Details of these are given in *Work Study* by the International Labour Office.

Palila Clothing Company

Palila manufactures a wide range of garments for government organisations and companies such as King Gee, Cant Tear 'em, Stubbies and Yakka. Palila concentrates on the Australian market, but through other companies some of its products are exported to the United States and Japan.

To improve productivity and reduce times between order and delivery, Palila has changed work organisation and redesigned the jobs of operators. Traditional flow line production with specialised operators on piece work has been discontinued. Palila has implemented quick response manufacturing in which production cells of 6 to 8 operators are responsible for making a complete product. The team is rewarded for productivity and quality. Machines are arranged in a 'horseshoe layout'. The product moves around the horseshoe. The progress (or lack of progress) of the product is visible to the team. Members of the team are multi-skilled, being able to operate any of the machines tin the horseshoe. Thus bottlenecks can be quickly attended to.

To support these changes, in-house training has been increased. Palila is negotiating with the Toowoomba College of TAFE to develop basic and advanced machining courses covering a wide range of skills. Another key element of restructuring at Palila includes an active consultative committee.

Who should undertake the job redesign project? Many suggest a 'participative' approach, where the people doing the job identify the issues and explore solutions. Fred Emery argues that the people doing the job are the experts. A job design expert may be involved to facilitate the project.

SECTION 3

INDUSTRIAL RELATIONS RAMIFICATIONS

SKILLS AUDITS AND THE STRUCTURAL EFFICIENCY PRINCIPLE

Skills audits arise from the requirements of the industrial relations structure. The National Wage Case of August 1988 introduced the *Structural Efficiency Principle* whereby wage increases would only be granted if the parties to the award demonstrated that they were working towards a fundamental review of their award with a view to improve efficiency and provide workers with access to more varied, fulfilling and better paid jobs. Skills audits are a means to this end and thus from their outset are linked to the industrial relations of a given enterprise.

A skills audit is a radically different process to other research activities because its recommendations are aimed at individuals/small groups within a given enterprise and not groups of people within the greater society. A skills audit deals with the placement of individuals with an award, provides data for subsequent job redesign and work redesign and allows judgements to be made on the training individuals/small groups require. These outcomes from a skills audit directly affect individuals and can give rise to industrial relations problems. The process also takes place in an environment charged with pre-existing industrial relations problems.

The *Structural Efficiency Principle* is fundamentally transforming the nature of industrial relations in Australia. The traditional approach still present in many organisations can be summarised as follows (Niland, p57):

> *pay tends to be fixed to narrow job classifications; performance ultimately is secured through either coercion of financial incentive; there is no (or very little) input by employees in the planning and design process; the "them and us" attitude is institutionalised in the conflict resolution process; there is specialisation of work through the simplification of individual tasks, leading to deskilling; restrictive work practices are developed, in part as a protective device by employees and in part as a spin-off from the "them and us" syndrome' hierarchy is a key principle of organisation; management tends to monopolise the functions of co-ordination and control; the machinery is special purpose and product specific, and is often under-utilised; there are long production runs of standardised parts and products, usually distributed to large, homogeneous markets; and as a general rule, quantity rather than quality is emphasised.*

The emerging picture contrasts radically with the traditional environment (Niland, p57):

> *payment more often is linked to skills, training and experience;*

classifications are broadbanded; there is a greater commitment to employment security; joint problem solving is practised, in part through an ongoing dialogue between management and employees; co-ordination and control responsibilities are devolved within flat organisational structures; the traditional first line supervisor role is eliminated or changed to be consistent with the devolution approach; there is a more flexible, multiskilled workforce, to accommodate the changes in organisation and technology; products and services are more likely to be customised, reflecting a responsiveness to customer needs, and there are continuous improvements of service or production processes.

A pacesetter in industrial relations progress is the Metal Trades Award (see MTIA booklet).

INDUSTRIAL RELATIONS AT THE WORKPLACE

The relationship between management and workforce will vary from enterprise to enterprise. The nature of that relationship may not always be apparent. A useful starting point is to assume that the interests of both parties do not perfectly coincide and that many agreed positions on matters between the parties are formed on the basis of compromise. A skills audit process will enter into an environment where every activity, communication and outcome will be interpreted and given positive or negative meanings within that context.

A case study of the introduction of quality control circles at Reckitt and Coleman provides one insight into the relationship between management and workforce (Dunford and McGraw).

A new manager with the advice of consultants and the concurrence of the unions introduced quality control circles. The manager wanted to improve worker-management relations on site, to develop dialogue with the workforce which did not involve unions and to improve the grievance handling skills of the supervisors who would head the circles. A major interest of management was to strengthen the supervisors at the expense of the union shop stewards (Lever-Tracy, p183). The supervisors response was one of uncertainty and resentment which gradually subsided to acceptance. Whilst some of the workers saw the scheme as yet another management device in getting more out of them, most were enthusiastic. The circles were successful for the first few years, leading to a number of recommendations about improvements to the production line being implemented. After that, the circles began to fold. A clear difference between management and workforce emerged over the continued existence of the circles. Management believed they had served their purpose and did not commit their energies (e.g the supervisors resigned in mass from leadership of the groups). On the other hand there was considerable hostility and disenchantment by the workers as they

believed the groups collapsed because of management inaction. The circle members felt failure in their attempts to make physical changes to their work environment.

The main industrial relations issues that will be present whenever a skills audit takes place include:

- retrenchments - the potential that increased productivity flowing from new technology, job redesign and work reorganisation will result in redundancies. Skills audits could be used to identify the individuals least useful to the enterprise.

- wages, conditions of employment and allowances - concern about a loss of current entitlements.

- perceived loss of status for middle level positions through greater participation of the workforce in decision making.

- provision of career path and easy access to the means to move along the career path - e.g. participation in accredited training during work time.

- perceived loss of status for given jobs - a reduction of education/training barriers will give greater access to positions currently held only by staff who completed a formal apprenticeship, perhaps leading to a perceived loss of privilege and status.

- coverage of the workplace by given unions - potential in the reduction in the number of unions covering the enterprise - loss of power and influence of some occupational groups.

- concern over having to attend formal education programs - fear of failure leading to reduced status.

Beyond these specific issues, there are general concerns about change coming from both workforce and management. A view that "things were going quite well as they were" may pervade many organisations leading to reluctance to change and hence full cooperate in the skills audit process. In the latter case participation in a skills audit is largely carried out to satisfy the *Structural Efficiency Principle* or to satisfy one or other of the parties.

WAYS TO HANDLE INDUSTRIAL RELATIONS ISSUES

A simple rule to follow is to work through consultative committees which should be representative and avoid undue involvement with specific parties (e.g. representatives of one particular union). Also never address any question which has direct industrial relations implications (e.g. "what do I have to do to get level 5 in the award rather than level 4?"). Always request the person to refer the question to the consultative committee.

Avoidance of problems with industrial relations can also be accomplished through the following:

- determine early in the process the issues and problems existing in the enterprise in discussions with management and consultative committees. Try to establish the interests of all the parties;
- establish the union coverage;
- obtain copies of relevant awards;
- ensure that all staff in the enterprise understand what is about to happen before any activity takes place; and
- maintain confidentiality and security with all individual data collected.

SECTION 4

TECHNIQUES

The different techniques for undertaking the data collection phase of a skills analysis or related process have been grouped under five headings:

- organisational records
- observation methods
- interview methods
- questionnaire-based methods
- group process methods

It is desirable that even a small study should include a combination of two or more techniques from more than one of these groups. For example, a group method may be used to identify the key knowledge, skill and attitude components required for the job; while an interview method may be used to develop more detailed information on each component. However, the grouping does help us understand the context of individual techniques.

The following information on the various techniques was compiled in a study by the TAFE national Centre for Research and Development for the Department of Employment Education and Training. It is reported in the booklet 'Training Needs Analysis' (by Hayton, Clark, Hayes and Guthrie, 1989).

ORGANISATIONAL RECORDS

This is an obvious starting point for a study being undertaken for any single organisation. Whether the study is being conducted by an internal training specialist or by an external consultant, something has triggered the decision to conduct a study. Much of the important information could be written in the form of reports or charts.

Sources of information include quality control records, departmental logs, and job descriptions. These resources can usually provide the information required for the analysis.

A summary of the strengths and weaknesses of using organisational records is given in the following box.

ORGANISATIONAL RECORDS

Strengths

- **inexpensive, as information is readily available**
- **provides necessary background knowledge**

Weaknesses

- **information may be out-of-date**
- **subjectivity**
- **may require content analysis skills**

OBSERVATION METHODS

The two main techniques in this classification are informal observation and task analysis. Informal observation will be an essential component of almost any study. It will usually be incorporated with any of the other techniques described to ensure that contact with reality is maintained. In observing any job or occupation we rapidly establish some parameters concerning the component tasks. How varied are they? How much time is spent on each? Are most tasks single-person tasks or do people usually work in pairs or teams? Whilst this does not give us definitive data, it provides us with a 'feel' for the job and its tasks. This enables us to ask the relevant questions at a later stage.

Informal observation will suit many companies with limited objectives and research capabilities.

Skills and training needs can be readily determined by astute observation in the workplace. To ensure validity, the research should be unobtrusive and care should be taken to document observations objectively. Clearly the success of this method will depend on the experience and perceptual ability of the observer. A larger number of observations taken over a longer period of time will increase the reliability of the findings.

More formal observation methods such as, task analysis, method study and

work measurement can provide accurate information. They are particularly useful for studying operator jobs. If these methods are to be used it is necessary to explain your purpose to the operators concerned and seek their cooperation.

In *task analysis* a 'task' can be regarded as a hierarchy of operations and sub-operations. While a description of the execution of a task will include information about the training requirements for that task, it will also include many other things. There are a few rules to guide the collection of information required for training purposes and the amount of detail necessary.

Many task taxonomies are based on the premise that optimum learning takes place when different components are learned separately (i.e. different tasks are best learned in different ways and under different conditions). For example, if training is attempted across several levels in the hierarchy simultaneously, delays will be likely if mastery at each level depends on prior mastery at a lower level. The analysis then normally proceeds to divide the specific task into cognitive (knowledge), psychomotor (skill) and affective (attitude) components.

Although task analysis is popular because of its low cost, relative speed and apparent simplicity, it is a much more complex method than many researchers realise.

A summary of the strengths and weaknesses of observation methods is given in the following box.

OBSERVATION METHODS

Strengths

- **Economic - for small numbers**
- **may be unobtrusive**
- **minimises interruption**
- **can obtain highly relevant data**

Weaknesses

- **requires skilled observer**
- **requires objective recording**

INTERVIEW METHODS

Interviews are the most easily applied skills analysis methodology. The informal, unstructured one-to-one interview is useful for obtaining information quickly and inexpensively, provided that the interviewees are few in number and readily accessible. Formal, structured interviews involving a large number of geographically dispersed respondents, can be expensive and time-consuming. Telephone interviewing may be a less expensive alternative, but requires special interviewer skills.

The unstructured interview

Because of its frequent informal application, this is probably the most common of all occupational and training needs analysis methods. It is characterised by the use of flexible open-ended questions, non-judgemental responses and prompting. It is employed when the researcher needs to get quick firsthand skills analysis data, PLUS background information on sensitive issues such as attitudes, personalities and industrial relations matters.

The *advantage* of the *unstructured interview* approach is its ability to explore broad issues and its ability to provide a situation where issues can be explored in a non-directive, non-threatening manner. The interviewer should be able to create a climate in which the respondent freely offers candid information.

The main *problems* relate to its:

- generation of opinion rather than fact;
- lack of consistency when applied to larger populations.

To minimise potential difficulties, the researcher can use the unstructured interview in conjunction with a more rigorous method and in addition, ensure that interviewers are trained to a consistent standard.

The structured interview

The introductory comments and questions relating to the unstructured interview are similarly applicable to this technique.

Its *strength* lies in its ability to give more consistent outcomes than its unstructured counterpart, especially when administered by different interviewers. Responses to a structured interview will normally be easier to quantify and interpret, since uniform questions tend to yield a narrower range of responses.

Its *drawbacks* are that:

- it usually takes longer to prepare;
- it may fail to yield the full range of possible outcomes.

While precautions should be taken to 'debug' questions (e.g. remove ambiguity, explain terminology), the interviewer nevertheless has the opportunity to deal with respondents' difficulties.

The telephone interview

This method is most cost-effective when respondents are geographically dispersed or difficult to contact during normal business hours. It is more suited to non-complex studies or as a follow-up on a previous face-to-face interview or mail survey.

Its *advantages* include, savings on travel costs, more personal than a mail survey but less confronting than a face-to-face interview, and speed. It will usually produce a better response rate than a mail survey and may cost no extra if the numbers interviewed are small (say <50). Its *drawbacks* are: harder to gain respondents' cooperation over the telephone, more difficult to ensure the availability of the chosen respondent (may require several return calls) and explanations may take longer. Furthermore, many interviewees may wish to carry the conversation well beyond the boundaries of the formal interview. In addition only those who have access to a telephone can be interviewed!

Telephone interviewers must be trained. Handling respondents' questions and objections on the phone requires special skills.

The telephone interview is well worth considering for shorter, simple investigations. It is often a good way to begin a study, rather than proceeding immediately into the field. Sometimes it may be the ONLY method whereby information can be obtained from very busy or isolated people.

A summary of the strengths and weaknesses of interview methods generally is give in the following box.

INTERVIEW METHODS

Strengths:

- **Easier to gain respondents' confidence**
- **Questions can be clarified**
- **Feedback can be given immediately**
- **More personal**
- **Suitable for examining sensitive subjects**

Weaknesses:

- **Time consuming**
- **Lack of consistency between interviewers**
- **Can get off the track**
- **Opinions & feelings instead of facts**

QUESTIONNAIRE-BASED METHODS

Survey methods for research are commonly used in skills analysis. They are used to collect quantitative data on occupations (including duties and tasks performed), skills or competencies required for the job (including knowledge, skills and attitudes required) and skills or competencies possessed by individuals. When using questionnaire-based methods, you will need to:

- define the population
- select the sample
- develop data collection instruments
- collect data
- process and analyse the data

Questionnaire-based methods, like other methods, have a number of strengths and weaknesses. A single study may therefore combine two or more methods to yield optimum results. For example, a survey conducted by mail may be integrated with a set of interviews. The interviews could be used to refine the mail questionnaire in a pre-test phase, and/or the interviews could be used to supplement the quantitative data from the mail survey with qualitative data.

If a survey questionnaire method of occupational analysis and/or training needs analysis is chosen, a further choice is required between:

- a general questionnaire-based method; or
- a specific method.

By definition, the general questionnaire-based method is adaptable and may be applied to almost any research problem, whereas the specific methods are more restrictive and are usually applied to standard occupational analysis or training needs analysis research problems. The specific methods have the advantage however of a proven usefulness in occupational analysis or training needs analysis, and are usually supported by a body of specialised literature.

General questionnaire-based methods and two specific methods, CODAP AND *Delphi*, are described here. A number of other specific survey techniques are generally recognised and there is a considerable body of knowledge and literature concerned with their development, use and outcomes. Major techniques include:

- Work Performance Survey System (WPSS);
- Position Analysis Questionnaire;
- the Job Components Inventory (JCI);
- the Occupational Survey Data Analysis System (OSDAS); and
- Functional Job Analysis.

General questionnaire-based methods

In questionnaire-based methods, individuals provide written answers to specific questions contained in the questionnaire. The questionnaire is distributed to each individual personally by the researcher or by post, and the completed questionnaire is collected by the researcher or returned by post. The key feature of these methods is that the questionnaire is designed for self-completion, that is, completion by individual respondents without the presence of the researcher.

For an occupational and skills analysis, workers within the occupation of interest are usually surveyed and the questionnaire may contain five main groups of questions:

- questions concerned with the organisation (e.g. numbers of employees in organisation, main activities of organisation, training policies of organisation);
- questions concerned with the individual respondent (e.g. age, sex, education and training received, career path, present salary);
- questions concerned with the individual respondent's present job (e.g. main job functions, duties and tasks performed, task frequency or relative time spent);
- questions concerned with the skills or competencies required for the present job;
- questions concerned with the skills or competencies possessed by the respondent.

A number of important steps should be followed when using survey methods. For example:

- care should be taken to define the population accurately;
- scientifically-designed methods should be used to obtain a representative sample;
- the expected outcomes of the survey should be identified beforehand to provide a basis for design of the questionnaire;
- an explicit rationale is required for each item in the questionnaire. This should cover *why* the question will be asked and *how* the information will be reported;
- the questions should be ordered logically;

- leading questions and value-laden wording should be avoided;
- the questionnaire should be *pre-tested* by trialing a draft version of the questionnaire with a small cross-section of the sample;
- a covering letter and a pre-paid return envelope should be used for mail surveys;
- experienced and trained editors and coders should be used to process completed questionnaires;
- principles of statistical inference in reporting results should be used;
- tables and diagrams to present numerical data as clearly as possible should be used.

Questionnaire-based methods have a number of strengths and weaknesses, which are highlighted in the following box.

QUESTIONNAIRE-BASED METHODS

Strengths:

- **economical for large numbers of respondents**
- **consistent interpretation of questions**
- **data is easy to analyse**
- **high level of confidentiality possible**

Weaknesses:

- **samples are often not representative**
- **rates of return often low**
- **does not usually allow for clarification of question**
- **unsuitable for respondents with low literacy skills**

CODAP method

CODAP stands for Comprehensive Occupational Data Analysis Programs. Although CODAP refers specifically to a suite of fifty computer programs, the term is also used to describe the associated data gathering method. The CODAP method involves:

- constructing an inventory of all the tasks likely to be undertaken in the job(s);
- developing a questionnaire which incorporates the task inventory;
- surveying a sample of the job incumbents;
- analysing the data using the CODAP programs;
- reporting the results.

CODAP studies may vary considerably in size, but compared to other methods, CODAP generally requires a moderate to large amount of time and resources. The most time-consuming stages of a CODAP study include the development of the task inventory and the administration of the survey.

However, CODAP is very useful when a detailed analysis of the work of fifty or more workers is required. A CODAP study will:

- determine existing job groups, each job group consisting of workers having similar job profiles;
- provide a job profile on each job group;
- provide a general profile on each job group using variables such as age, sex, job experience, education and location.

The CODAP method may be used for any occupations which may be broken down into a number of tasks. Thus, it is particularly applicable to manual occupations, but it may also be used for almost any technical, clerical or managerial occupation.

There are two main options available if a CODAP study is to be performed. The first option is to commission a consultant experienced in CODAP studies to undertake the entire study. As there are already a number of experienced CODAP researchers available in Australia, this option is attractive provided an organisation is prepared to commit the necessary funding.

As a second option, the CODAP study may be conducted by an in-house researcher, a feasible alternative if researchers exist with experience in

other survey methods of research. Even with this approach, however, it is recommended that an experienced consultant be used for the computer analysis stage of the project.

Strengths and weaknesses of CODAP

The main *strengths* of CODAP methodology are:

- it is a well established and well documented skills analysis method;
- aspects of CODAP methodology have been refined and validated by many years of research;
- through its cluster analysis program (involving a mathematical grouping of members of the sample on the basis of the task inventory responses) it is capable of systematic classification of job types;
- it is useful for large and diverse populations;
- the computer printout form is designed for occupational analysis reports.

The main *weaknesses* of CODAP methodology are:

- like other task inventory methods of skills analysis, CODAP is based on the concept of dividing jobs into tasks, and for some jobs this may be an imperfect representation of the job;
- CODAP studies require a moderate to large amount of time and are moderately to very expensive to conduct by comparison with other methodologies;
- the CODAP programs require a main frame computer and an expert to run the programs;
- the data is virtually inaccessible to the client;
- lack of future orientation.

Delphi method

The final questionnaire-based technique to be discussed here is Delphi. This technique forms a bridge between survey techniques and group process methods. The Delphi method assumes that society is directed towards goals and that these goals are determined by the actions of various interested groups (Anderson & Jones 1986). The methodology employed by this technique is based on an examination of future trends, using a series of questionnaires to draw information about the pattern of likely or 'desirable' future events from a selected panel of experts. The results of the previous

survey are given to the panel for reaction and refinement.

The Delphi method links survey and group process methods because it is conventionally a survey technique, but it may also be run as a conference process. It has four phases. In its survey form the process can be accomplished in as little as forty-five days (Delbecq et al. 1975). Group size may vary between ten and thirty but if the responses of sub-groups are to be identified, larger group sizes should be obtained. In the survey of methods of occupational and training needs analysis in Australia (Williams & Hayton 1987), only one Delphi study was conducted in 128 studies surveyed. This study cost $25,000, took six months to complete during which time 250 people were contacted only fifty of whom responded. Only some of the objectives of the study were achieved.

Strengths and weaknesses of Delphi

The main *strengths* of Delphi are that it is:

. futures orientated, suitable where change is rapid;

. relatively fast, especially in conference format;

. capable of focusing on the main issues.

Its main *weaknesses* are its:

. low response rate in survey form;

. limited range of responses;

. relatively high cost.

GROUP PROCESS METHODS

This set of analysis methods contains some very fruitful techniques for obtaining information. They are all loosely based on the technique of brainstorming and are characterised by two distinct processes:

. idea generation; and

. idea evaluation

Since the dynamics of groups are not always conducive to the free flow of ideas, skilled *facilitators* are usually required. The facilitator's role is to make it easier for group members to contribute their ideas. For example, this may involve protecting and encouraging shy or reticent members, subtly curbing over-zealous or long-winded members and summarising diverse opinions.

It takes training and experience for a researcher to develop the interpersonal skills necessary to achieve effective contributions by the entire group. Essential characteristics of an effective facilitator are open-mindedness, tact, understanding of group dynamics, good humour and the ability to synthesise and summarise information.

Strengths and weaknesses

Generally speaking, group methods give detailed qualitative data and can generate creative solutions to problems. However, they can be time-consuming if not well managed and can yield biased outcomes if certain group members are allowed to dominate proceedings. The main strength and weaknesses are summarised in the following box.

GROUP PROCESS METHODS

Strengths:

- **Fast**
- **Creative outcomes**
- **Inexpensive**
- **Participative**
- **Analysis and evaluation of data performed by group**

Weaknesses:

- **Can be time consuming (for a large group)**
- **Difficult to control**
- **Inconsistent results**
- **Qualitative rather than quantitative data**
- **Limited by collective knowledge of group**

Brainstorming

This is a technique of small group discussion designed to encourage the generation of unrestricted flow of ideas. Often certain members of a group

lack the confidence to put forward good ideas whereas more confident members are able to impose their point of view irrespective of value. Brainstorming is designed to overcome this problem by removing inhibiting factors and improving interaction and contribution.

Brainstorming is a process which encourages group participation, but it does require a skilled chairperson. The chairperson should be someone skilled in the technique. The issues to be considered are clearly defined by the group and a secretary is appointed. Since brainstorming operates on the principle that quantity is a prerequisite of quality ALL ideas generated are recorded.

Criticism or debate on contributions is forbidden and the chairperson/facilitator actually encourages lateral thinking and development of previous ideas. Extreme suggestions are welcomed in an attempt to maximise the number of ideas and adverse judgements are suppressed. At the end of the session the group may choose to evaluate the outcomes by prioritising, combing or editing the contributions.

This technique works most effectively with a group of 5 to 12 people and is ideally suited to consideration of issues like job performance and job design deficiencies, quality control and problem solving.

Although this technique produces inconsistent results, brainstorming usually elicits more ideas than individuals working alone. Successful results, cannot be guaranteed by this method, especially if group members do not have suitable ideas. With knowledgeable and experienced people, however, creative outcomes can be produced within very short periods of time (e.g. one hour or less). Further more, it is an inexpensive technique when used in-house or where the cost of getting the group together is minimal. The chairperson should be trained or at least have prior experience in brainstorming.

Strengths and weaknesses

The *strengths* of brainstorming are that it is:

- fast
- creative
- inexpensive

The *weaknesses* of brainstorming are that it:

- gives inconsistent results
- is reliant on group member's knowledge
- is difficult to control

Some tips for brainstorming:

- write up the issue or problem being considered;
- work in a circle;
- set a time limit and target: e.g. thirty ideas in thirty minutes;
- suppress 'killer' phrases: e.g. 'It won't work', 'We've tried that before', or any other hint of criticism;
- praise quantity rather than quality;
- don't settle for just the obvious ideas, seek out the wild ones;
- encourage 'piggy-backing': i.e. the improvement, extension and modification of a previous suggestion;
- record every contribution. Failure to do so will imply a criticism and may stifle further ideas from that member;
- when ideas have dried up, move on to evaluation.

Nominal group technique

This structured form of brainstorming which involves individual silent work prior to group members sharing their ideas. After the group has decided on the topic, the facilitator imposes strict control over verbal interaction while each member writes down ideas.

Discussion is actively curtailed to prevent any prejudgment of an idea or group pressure inhibiting any individual's contribution.

After a short time (say 10-15 minutes), each member then presents one idea in turn (i.e. round robin listing) while the facilitator records all ideas on a flip-chart visible to the whole group. Some general points to be observed during this phase are:

- ideas are presented in brief words or phrases;
- ideas are taken one at a time from each member;
- individual member's ideas are not altered;
- when a member runs out of ideas, they just say 'pass'. They can re-enter later, if they think of a new idea;
- the facilitator should write quickly;

- arguments are avoided by allowing no discussion in this phase;
- 'hitch-hiking' or 'piggy-backing' on ideas should be encouraged;
- no criticism is allowed.

With the agreement of the group the items listed are then merged, simplified or organised as needed. Again, discussion is limited to clarification and the facilitator should ensure that no member is forced to be the sole person responsible for clarifying his/her item.

Next, preliminary voting takes place to establish a priority within the items. If anonymity is an issue this can be done privately on index cards and shuffled.

Discussion on the items takes place for further clarification, support or disagreement from individual members as well as further additions and merging. Ideas developed from other peoples' ideas and generation of new ideas should be actively encouraged. A final vote on the cumulation of ideas is taken. Each member votes individually, ranking items according to their own preference. These votes are then collated to produce a group decision.

The Nominal Group Technique is preferred to simple brainstorming in these situations where members may be inhibited from producing creative solutions by conforming to the group norms or narrow-mindedness.

Strengths and weaknesses

The strengths and weaknesses of the Nominal Group Technique are similar to those of brainstorming. The technique sacrifices creativity but there is greater control by the facilitator.

DACUM method

DACUM is an acronym for *Design (or Develop) a Curriculum.*

This is another group-centred approach which uses brainstorming to produce a set of behavioural objectives plus a skill inventory for a given occupation or range of jobs. It works best with a group of 8 to 14 participants, producing initial information in one to three days. In Australia, DACUM is mainly used by TAFE to involve industry personnel in curriculum development for vocational training courses.

A DACUM conference usually consists of five phases:

1. Introduction and orientation.
2. Clarification of the occupation/jobs to be analysed.

3. Identification of general areas of competence.

4. Identification of tasks within each occupation/job.

5. Analysis of data.

The technique requires a skilled facilitator, a secretary or recorder and a quiet venue, free of interruptions. Participants should be carefully selected on the basis of their occupational knowledge, open-mindedness, industry background and availability for the duration of the process.

DACUM's success relies on the ability of the group members to generate new ideas creatively. All competencies identified are written on index cards by the recorder and placed in sequence on a wall facing the group. During the analysis stage the contributions are given to two or three teaching specialists for comment and an estimate of the instruction time required to cover each subject. The competencies are then regrouped into the order that they would normally be found in a job situation. Finally a draft sequence of topics is developed and submitted to the training provider.

Strengths and weaknesses

The main *advantages* of DACUM are:

- the speed of initial information gathering;
- group discussion is more likely to achieve consensus;
- there is more control over input than in a questionnaire approach;
- outcomes are behaviour-orientated rather than information-orientated;
- issues are assessed and analysed at the discretion of the participants, rather than the researcher;
- positive feedback is provided to participants who can see how their input is utilised throughout the process.

Problems may occur if the:

- facilitator is not adept in managing group processes or fails to suppress personal biases. (The latter can be prevented by using two facilitators.)
- participants are not truly representative of industry or lack the ability to articulate their ideas clearly.

The cost of using DACUM will vary according to the scope of the study, the number of participants involved and the time taken for the conference and follow-up analyses.

Force field analysis

Whenever there is a need for change there will always be arguments for and against. This situation can be tackled by using force field analysis, which analyses the forces working for and against change.

It is unlikely therefore to be used for skills analysis but could be used to facilitate implementation of the outcomes of a skills analysis, training needs analysis, or job redesign project.

Force field analysis helps to reduce the forces against change and increase the forces for change. Therefore force field analysis may improve the chances of bringing about the desired change. The activity can be undertaken individually, in pairs or in groups.

The steps for conducting a force field analysis in a small group setting are:

1. List on a large piece of paper both the beneficial and constraining forces. It is often helpful to consider the traditional '5ms', or resources of management: i.e. manpower, machinery, methods, materials and money. You may wish to add a sixth 'm' representing minutes, which would reflect your recognition that time is also an important resource. (Other groups, such as quality circles, typically exclude 'money' since it is not a direct factor in determining causes of defects in a product or the malfunctioning of a system or procedure).

2. Rank the forces according to the importance of the effect on the present situation. Some groups do this graphically; others use a scale of 0-10.

3. Rate the forces according to how easily they can be increased or decreased. Consideration should be given to enhancing the beneficial forces or alternatively, to removing or diminishing the importance of the constraining forces. A combination of the two may even be feasible.

4. Then take the forces which are easiest to change, and with the greatest likelihood of success, and develop goals and plans to undertake this change. This will involve deciding what needs to be done, who needs to do it, when it needs to be done and what resources are required.

5. Then tackle the more difficult forces, using the same approach as used in the previous step.

Strengths and weaknesses

The *strengths* of the technique are that it is simple, quick and inexpensive. However its *weaknesses* are that it tends to ignore interaction between forces. In addition, individuals and small groups inexperienced with the technique may overlook crucial forces. Furthermore difficulty is often encountered gauging the relative importance of various forces.

Search conference

Search conferences represent another form of structured brainstorming. As the name implies, a conference or group of people searches for information or solutions. It is a technique which emphasises and anticipates future trends and is useful for assessing the current situation, proceeding from there to predict future needs and trends.

The search conference works well with groups of 15 to 30 members who possess knowledge and experience in the field under discussion. A trained facilitator is needed to control the process in which members interact in small groups of 5 to 10 before reporting back to plenary sessions of the conference. The process usually takes form half to 2 days depending on the number and complexity of the issues involved.

Typically, a search conference commences with a statement of both the organisation's main objectives (e.g. to have well trained workers) and the conference's specific objectives (e.g. to determine their training needs). Each group's findings are recorded and reported back to the conference where the issues are synthesised and perhaps referred back to the groups for further clarification. When the conference has agreed on the organisation's future needs, strategies are then developed for meeting those needs. Finally, an attempt is made to predict the outcomes and impact of those strategies.

Guidelines for conducting search conferences are similar to those for brainstorming. The search conference has been used extensively for deducing labour force requirements from corporate objectives. Like other group processes this method cannot be relied upon to produce totally accurate or unanimous forecasts. The quality of the information generated can be directly related to the calibre of the participants, especially the facilitator. However, when all participants are in this one location it is relatively inexpensive in terms of time and cost.

SELECTION OF TECHNIQUE

As we can see in this section, there is a wide range of techniques available for conducting skills analysis and related projects. Clearly there is no one best method which covers all situations. Thus the problem becomes one of choosing the most appropriate for each situation.

A number of factors will help to determine which method (or methods) is chosen. Each factor can be posed as a question which may be considered before choosing how the study will be undertaken. Before moving to the specific questions associated with the factors, it may be useful to address two over-riding questions:

. What is the problem to be addressed?

. What are the objectives of the study?

The answers to the above two questions should provide guidelines for answering the following specific questions:

. How specific will the study be?

. What will the scope of the study be?

. What depth of information is needed?

. How large is the group that has to be surveyed?

. How rapidly is the area under study changing?

. How much time is available to do the study?

. How much money is available to undertake the study?

. What special requirements, if any, does the study have?

It will be necessary to consider the importance of each of these questions. Some will be more important in particular circumstances; others will have little relevance or significance. Thus there will be a need to apply a 'weight' or importance rating to each of the questions.

The following matrix can be used to guide selection of the most appropriate technique to suit the particular project. Details of how to use the matrix are given in Hayton et al (1988).

SECTION 5

DATA ANALYSIS

INTRODUCTION

Data analysis is an important part of skills analysis and related projects. Data analysis is usually a separate phase in the project except for group process methods. The method of data analysis and ways of presenting results should be considered at the project proposal and planning stages.

DATA ANALYSIS

The data collected in a skills audit, skills analysis and training needs analysis may be divided into the following main categories:

- background information on organisation and personal details;
- skills required for each job;
- skills possessed by the individual; and
- training needs and details of training programs.

If information covering all four categories has been obtained, this presents a wide range of ways of analysing the data. Clearly, the way chosen, and the format for the presentation of the results, will depend on the purpose and the audience of the report.

Choices need to be made on each of the following:

- manual or computer analysis;
- type of computer program;
- selection of analyst.

The data may be analysed manually (for small studies) or by computer. The main types of computer programs available are:

- skills audit package;
- general database package;
- general statistical package.

In addition, there are three main choices on who should do the analysis:

- in-house (client) staff;
- the consultant;
- a data analysis subcontractor.

The choice of program and person will depend on a number of factors, including the size of the study, availability of software package availability of expertise, costs and degree of integration required with other client personnel data systems. Table 5.1 gives a guide to the data analysis options.

TABLE 5.1
SKILLS AUDIT DATA ANALYSIS OPTIONS

	SMALL STUDY (less than 20 people)	MEDIUM STUDY (20 to 100 people)	LARGE STUDY (over 100 people)
Manual Analysis	R	N	N
Skills Audit Computer package:			
- in-house	P	R	R
- consultant	R	R	P
- sub-contract	N	P	R
General database package:			
- in-house	P	R	R
- consultant	R	R	P
- sub-contract	N	P	R
General Statistical package:			
- in-house	P	P	R
- consultant	R	P	P
- sub-contract	N	P	R

NOTES:

1. In-house: means the client organisation in which the skills audit is conducted is given the task of data analysis. This may be desirable when integration with other data systems within the organisation is desired, and further skills audits are to be undertaken by the organisation.

2. Consultant: means the consultant/TAFE teacher undertaking the skills audit also undertakes the data analysis phase of the project. This is best when such skills are available and the software is available.

3. Sub-contract: means the consultant sub-contracts the data analysis to a data analysis consultant. The specification of the outputs should be carefully described by the consultant, in consultation with the client. This may be the most economical approach when a large once-off study is being undertaken.

4. Key to symbols:
   N = not recommended
   P = possible option
   R = recommended option.

DATA PRESENTATION

Some useful ways of presenting the data include:

- preparation of a skills register, showing the skills or competencies required for each job;

- preparation of a skills profile for each individual, showing the skills possessed and the skills required for his/her present job;

- aggregation of data on skills possessed for a group of people (e.g. all electronic tradespeople, all TAFE teachers);

- preparation of a skills matrix showing the skills possessed, skills required and skills developed in training programs for visual comparisons (see table 5.2);

- cross-tabulation of data on skills with data on background information for groups of people; and

- in the case of a standards development project, preparation of a competency standards table, giving units of competence, elements of competence, performance criteria and range statements (see table 5.3).

TABLE 5.2
SKILL MATRIX FORMAT FOR PEOPLE, JOBS AND COURSES

SKILLS/ COMPETENCIES	PEOPLE		JOBS			TRAINING COURSES		
	X	Y	1	2	3	a	b	c
A1	/	X	/	/	/	/	/	/
A2	/	X	/	/	/	/	/	/
A3	/	X	/	/	/	/	/	/
A4	/	X	X	X	/	/	/	/
A5	/	X	X	X	/	/	/	/
B1	/	/	/	/	X	/	X	/
B2	/	/	X	/	/	/	X	/
B3	X	/	X	/	/	/	X	/
B4	/	/	/	X	X	/	X	/
B5	X	/	/	X	X	/	X	/
B6	/	/	X	/	/	/	X	/
B7	/	/	/	/	/	/	X	/
C1	X	/	X	/	/	/	/	/
C2	X	X	/	X	X	X	/	X
C3	X	/	X	X	X	X	X	/
C4	/	X	X	/	/	/	X	X
D1	/	/	X	/	/	X	/	X
etc.								

NOTES:

1. Key:

   / = skill possessed or skill required for job or skill developed in course
   X = skill not possessed or skill not required for job or skill not developed in course.

2. Analysis:

   (a) Compare jobs with courses: - Which courses are suitable for each job? Which skills are not covered by the course? What additional skills development/training would be required? Which skills are best developed on-the-job?

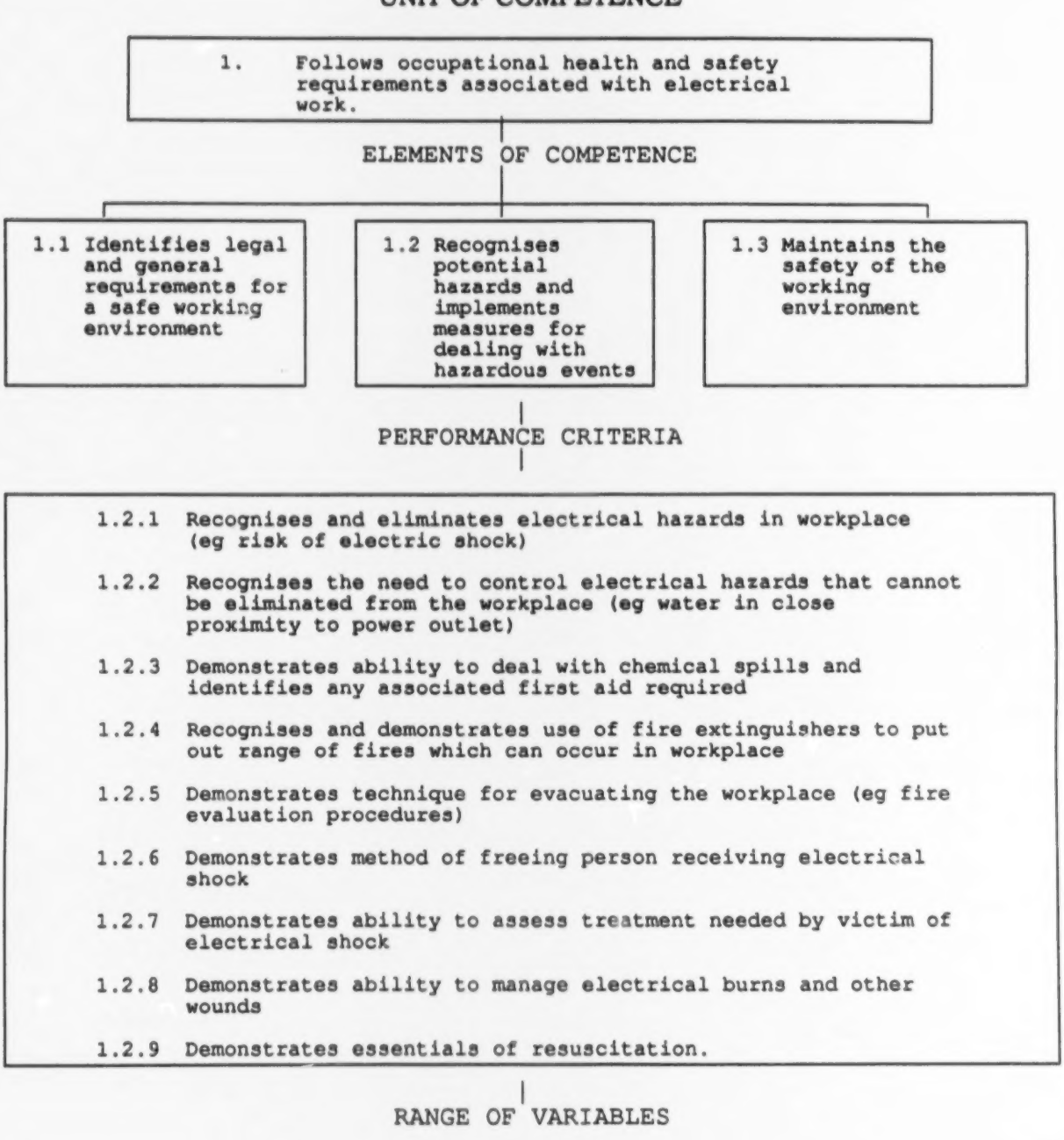
   (b) Compare jobs with jobs: - Which jobs require a wider range of skills? Is there a job hierarchy in terms of skills required? What are appropriate career paths

and associated training? What additional training is required to move from one job to another?

(c) Compare people with jobs:- Who has the skills required for each job? For a particular person working in a job, what are the skill deficits?

(d) Compare people with courses:- Which courses would be useful for each person?

3. A skills matrix may include just one or two of the three categories of people, jobs and courses.


UNIT OF COMPETENCE
1. Follows occupational health and safety requirements associated with electrical work.
ELEMENTS OF COMPETENCE
1.1 Identifies legal and general requirements for a safe working environment
1.2 Recognises potential hazards and implements measures for dealing with hazardous events
1.3 Maintains the safety of the working environment
PERFORMANCE CRITERIA
1.2.1 Recognises and eliminates electrical hazards in workplace (eg risk of electric shock)
1.2.2 Recognises the need to control electrical hazards that cannot be eliminated from the workplace (eg water in close proximity to power outlet)
1.2.3 Demonstrates ability to deal with chemical spills and identifies any associated first aid required
1.2.4 Recognises and demonstrates use of fire extinguishers to put out range of fires which can occur in workplace
1.2.5 Demonstrates technique for evacuating the workplace (eg fire evaluation procedures)
1.2.6 Demonstrates method of freeing person receiving electrical shock
1.2.7 Demonstrates ability to assess treatment needed by victim of electrical shock
1.2.8 Demonstrates ability to manage electrical burns and other wounds
1.2.9 Demonstrates essentials of resuscitation.
RANGE OF VARIABLES

Training

The training covers the recognition, control and elimination of hazards in a workplace where there are electrical hazards. This includes:

- Procedures for checking portable electrical power tools (1.2.1)
- Use of double insulated equipment (1.2.1)
- Hazard control measures in workplace (1.2.2)
- Methods for dealing with spills of polychlorinated biphenyls (PCBs), acids and alkalis (1.2.3)
- Properties of PCBs, acids and alkali (1.2.3)
- First aid for acid and alkali burns (1.2.3)
- Recognition and use of all types of portable fire extinguishers for class A, B & C fires (1.2.4)
- Properties of chemicals used in extinguishers (1.2.4)
- Fire blankets (1.2.4)
- Fire drill and other evacuation procedures (1.2.5)
- Electrical accidents (1.2.6)
- First aid assessment (1.2.6/7)
- First aid for shock, bleeding, fire and electrical burns (1.2.8)
- Essentials of resuscitation (1.2.9).

Assessment

Assessment methods available are:

Under Workplace Conditions

A1 Complete checklist while observing process of performance
A2 Complete checklist while observing product of performance
A3 Responses to oral questions to assess knowledge and attitudes underpinning performance

Away from Workplace Conditions

B1 Complete checklist while observing process of performance
B2 Complete checklist for product of performance (i.e. result of test, project, assignment)
B3 Responses to oral questions to assess knowledge and attitudes underpinning performance
B4 Score written test (multiple choice, short answer, etc.) used to assess knowledge underpinning performance.

Performance criteria 1.2.1, 1.2.2 and 1.2.5 should be assessed using methods A1 and A3 (i.e. under workplace conditions) whenever possible. However all of the others require simulated rather than actual work-place assessment conditions. In most cases they will need to be assessed away from the workplace using methods B1 and B2, as appropriate. In addition, some of the criteria have a substantial underpinning knowledge component which needs to be assessed using methods B3 and B4.

SECTION 6

PROJECT PLANNING

This section aims to provide an overview of the strategies which are involved in successful project planning, and which could be developed and used in individual College environments. This program will provide an overview of some of those key factors. When engaged in planning a project for a client, it is important that specialist skills in the following areas are used:

- *Negotiation skills* are needed to ensure that all parties are in a win/win situation;
- *Preparation of the proposal.* A professional proposal will enhance your credibility as well as facilitate the implementation of the project;
- *Costing* is the vital factor which affects viability. Identifying what the market will bear and being able to deliver within the price line is vital to credibility and professional standing;
- In order to fulfil project obligations, a cohesive *project team* is essential. Selection, training and management are all relevant factors which contribute to appropriate end results;
- The overall *management of the project* will encompass all of the above factors. At the same time there are other requirements integral to total management techniques;
- The use of a *consultative committee* is an important way of winning wide support for the project and its outcomes; and
- *Setting the climate* is critical especially in the early stages of the project in order to gain understanding and co-operation for the project processes.

This participants' manual can be used throughout the program. It will be supplemented with information from the presenter.

NEGOTIATION

Negotiation is an important process that can take up to 20% of a manager's time. Use negotiations to resolve differences and this will contribute considerably to the success of the project. There are at least nine principles of effective negotiating, these are:

1. Preparation: Do your homework and identify attractive alternatives;

2. Clarify your position and theirs: Ask questions and restate your

understanding of the processes;

3. Listen actively: Talk less than 50% of the time;

4. Remain open: Don't close or conclude too early;

5. Provide help for the other party: Put yourself in the other's shoes;

6. Trade: Trade what is cheap to you but valuable to the other party for what is valuable to you but cheap to others;

7. Be prepared to apologise: It will de-escalate negative feelings;

8. Don't issue ultimatums: This requires "surrender or fight", and reduces future co-operation; and

9. Set achievable time-lines: For complex negotiation, set deadlines for agreement. Don't go on too long.

There are two main factors which affect negotiating styles:

. *Assertiveness*: People are more assertive when -

- the issues are important to them;
- they are confident in their knowledge;
- things are going against them; or
- they feel they control the power.

. *Co-operation*: People tend to co-operate when -

- they respect the other party;
- the relationship is valuable; or
- they need the other party to help carry out the decision.

A further factor *resolution* is also important. One solution is seldom appropriate for all groups. Try to develop creative solutions to help everybody win. Resolution skills are vital for successful project managers.

There are four types of negotiating styles:

. un-involving;

. surrendering;

. dominating; and

. problem solving.

The problem solving style is the ideal negotiating approach which should

lead to 'win-win' resolutions.
When choosing a style:

. Try not to adopt only one strategy for problem solving.

. Identify different situations and use appropriate skills. Try to maintain co-operative relationships; and

. Go for long term success, not "quick fix" solutions.

PREPARING PROPOSALS

A project proposal should provide a statement of the important features of a proposed research project. It is usually prepared by the person or organisation proposing to undertake the research. Its purpose is either:

. to provide a tender for research to a research commissioner; or

. to gain 'in-house' approval to commence the research project and/or release funding for the project.

When planning and preparing the proposal; the following steps may be used. Include this information in the written proposal being submitted.

. A Title

This should be clear and concise, conveying the main features of the study.

. A General Statement of the Problems and Issues

This should be available from exploratory research undertaken to define the problem or issues of concern. Details relating to other relevant studies should also be provided. Future research could also be foreshadowed.

. The Project Objectives and Expected Outcomes

The step which involves stating the project objectives and expected outcomes was described. The objectives should be clear and concise. They should be consistent with any proposals made relating to methodology(ies).

. Definition of Terms

Terms should be clearly defined.

. The Research Design/Methodology

The research design(s) and method(s) and sources of information the successful tenderer is expected to consider should be presented under this heading. Details should be provided on each of the individual steps of the project. Particular sources of information which are relevant to the study should also be listed. Any aspect of the methodology requiring particular attention should be emphasised.

. Study Time Lines

Guidelines relating to starting and finishing dates for the study should be clearly detailed. Critical dates within the study period should be flagged to indicate when important stages of the project are to be completed.

. Funds Available

An indication of the funds available to complete the project should be included. The amount of funds available should be consistent with the objectives of the project and the proposed methodology.

. Reporting Requirements

Indicate to whom (an individual, a committee, a steering or advisory group) the successful tenderer will be expected to report. Indicate how often interim reports are required and suggest the form(s) in which any final report(s) are expected - for example, is a full written report required along with a separate summary report? How many copies of the report(s) are required and who (the commissioner or tenderer) is expected to arrange and pay for their printing? In short, what are the reporting requirements?

Project proposals should include the main features of project briefs described previously. In addition, project proposals submitted for tendering usually include:

. details of the tenderer and/or the tenderer's organisation;
. previous clients and research projects completed; and
. names and addresses of referees.

PROJECT COSTING

When estimating costs for a project, use your judgement and don't be too mechanical. You need to strike a balance between operating at a profit and remaining competitive. You may wish to prove yourself and your service to a particular client who could provide on-going business. In this case it may

be preferable to look to the long term and set your costs lower. Use the exercise to build your reputation.

Two key principles should be followed when costing a project:

- use standard formulae to ensure that costing is both accurate and fast;

- the work done or costing should provide a sound basis for project management.

The following seven step procedure could be used as part of the project proposal preparation and also provide the basis for project management. The main steps include:

1. state project objectives;

2. describe project methodology to be used;

3. breakdown the project into 'tasks' or 'units of work';

4. estimate the consulting days required for each task/unit;

5. chart the sequence and duration for each task/unit;

6. estimate the cost of each project item using a checklist; and

7. set out budget based on these estimates.

One option for simplifying step number 6 is to use an inclusive consulting "charge out" rate (e.g. $1,200 per day) and multiply this by the number of consulting days (step 4) to get total project cost. Only extraordinary costs (such as interstate travel) would be additional. A detailed example of project costing by a Victorian TAFE College follows.

COSTING GUIDELINES

EXAMPLE MINIMUM PRICE CALCULATION FOR CONSULTANCY PROGRAM AND SERVICE DELIVERY AS AT 1/1/1990 (INCL. 3%)

1. PROGRAM DELIVERY (Minimum Price)

1.1 ANNUAL COST (Minimum price)	%	AMOUNT
Teacher II salary		$37 364
10% salary on costs		3 736
Total salary cost	50	41 100
Non-salary	25	20 550
College-wide consultancy management	10	8 200
Corporate cost	5	4 110
Profit	10	8 220
		$82 220

1.2 HOURLY COST

Annual cost divided by annual teaching hours, i.e. $82 200 divided by 710 = 116.

Rounded to $120 per hour.

1.3 DAILY RATE

Annual cost divided by average annual teaching hours, x 7 hours per day $82 200 divided by 710 x 7 = $810.

Rounded to $810 per day.

2. SERVICE DELIVERY (Minimum price)

2.1 ANNUAL COST	%	AMOUNT
College support service salary		41 137
10% salary on cost		4 114
Total salary cost	50	45 251
Non-salary	25	22 625
College-wide consultant management	10	9 050
Corporate costs	5	4 525
Profit	10	9 050
		$90 502

2.2 HOURLY COST

Annual cost divided by (weeks available x hours worked per week x chargeable hours ratio) $90,502 divided by (43 x 38 x 65% = 1062). Equals $85.21 per hours.

Rounded to $90 per hour.

2.3 DAILY RATE

Hourly cost x standard day of 7½ hours $90 x 7½ = $675.

Rounded to $675.

3. SUMMARY OF MINIMUM PRICES

3.1 PROGRAM DELIVERY

Hourly rate	$120
Daily rate	$810.

3.2 SERVICE DELIVERY

Hourly rate	$90
Daily rate	$675.

TAFE INDUSTRIAL DEVELOPING PROGRAM | PROJECT No.

PROJECT COSTING

CONSULTING/NEEDS ASSESSMENT

COLLEGE: _____

CONTRACT: _____ PHONE: _____

CLIENT: _____

ADDRESS: _____

_____ PHONE: _____

CONTACT: _____ POSITION: _____

PROJECT DESCRIPTION: _____

_____

_____

_____

_____

1. SALARY COSTS			
Management & marketing admin:	..... hrs x	.....	.....
or:	..... wks x	.....	.....
Teaching Division admin:	..... hrs x	.....	.....
Consulting/needs analysis:			
— (TTS staff):	..... hrs x	.....	.....
— Sessional/overtime:	..... hrs x	.....	.....
— Private consultant fee			
Management secretarial support:	..... hrs x	.....	.....
Project secretarial support:	..... hrs x	.....	.....
or:	..... hrs x	.....	.....
Travel time — management:	..... hrs x	.....	.....
— project:	..... hrs x	.....	.....
Caretaker/security/cleaning:	..... hrs x	.....	.....
2. TOTAL SALARY		.....	
3. ON COSTS CALCULATION:	Total x 18% =	$	

3. SALARY & ON-COSTS (brought forward)	.....	.....
4. ALLOWANCES		
Tea money/meal allowance	.....	.....
Overnight/non-overnight absence expenses	.....	.....
Travel — use of own vehicle: .....km x .....c/km	.....	.....
5. FACILITIES		
Facilities rental/hire	.....	.....
Facilities operation (additional costs)	.....	.....
Equipment purchase/hire	.....	.....
Equipment operation	.....	.....
Equipment depreciation/maintenance	.....	.....
6. ADMINISTRATION		
Marketing: Advertising	.....	.....
Promotional printing	.....	.....
Telephone/postage	.....	.....
Special insurance	.....	.....
7. CONSUMABLES — Admin/Management		
Printing materials	.....	.....
Stationery & office materials	.....	.....
8. CONSUMABLES — Project		
Printing materials	.....	.....
Stationery/Text	.....	.....
Computer/typewriter consumables	.....	.....
Art/photographic materials	.....	.....
Chemicals, oils etc.	.....	.....
Film/video — purchase/hire	.....	.....
9. SUB-TOTAL	.....	
10. TEACHING DIVISION MARGIN/INCENTIVE: ..... % =	.....	.....
11. PROGRAM/PROJECT MARGIN: ..... % =	.....	.....
12. TOTAL	.....	

TAFE INDUSTRIAL DEVELOPING PROGRAM

PROJECT No.

PROJECT COSTING

TRAINING

COLLEGE: _____

CONTRACT: _____ PHONE: _____

CLIENT: _____

ADDRESS: _____

_____ PHONE: _____

CONTACT: _____ POSITION: _____

PROJECT DESCRIPTION: _____

_____

_____

_____

_____

1. SALARY COSTS			
Management & marketing admin:	..... hrs x	.....	.....
or:	..... wks x	.....	.....
Teaching Division admin:	..... hrs x	.....	.....
Tuition/program delivery:			
— (TTS staff):	..... hrs x	.....	.....
— Sessional/overtime:	..... hrs x	.....	.....
— Private consultant fee			
Curriculum/program development	..... hrs x	.....	.....
Management secretarial support:	..... hrs x	.....	.....
Tuition secretarial support:	..... hrs x	.....	.....
or:	..... hrs x	.....	.....
Travel time — management:	..... hrs x	.....	.....
— training:	..... hrs x	.....	.....
Caretaker/security/cleaning:	..... hrs x	.....	.....
2. TOTAL SALARY			.....
3. ON COSTS CALCULATION:	Total x 18% =		$ .....

3. SALARY & ON-COSTS (brought forward)	.....	.....
4. ALLOWANCES		
Tea money/meal allowance	.....	.....
Overnight/non-overnight absence expenses	.....	.....
Travel — use of own vehicle: ....km x .....c/km	.....	.....
5. FACILITIES		
Facilities rental/hire	.....	.....
Facilities operation (additional costs)	.....	.....
Equipment purchase/hire	.....	.....
Equipment operation	.....	.....
Equipment depreciation/maintenance	.....	.....
6. ADMINISTRATION		
Enrolment/processing/certification	.....	.....
Marketing: Advertising	.....	.....
Promotional printing	.....	.....
Telephone/postage	.....	.....
Special insurance	.....	.....
7. CONSUMABLES — Admin/Management		
Printing materials	.....	.....
Stationery & office materials	.....	.....
8. CONSUMABLES — Project		
Printing materials	.....	.....
Stationery/Text	.....	.....
Computer/typewriter consumables	.....	.....
Art/photographic materials	.....	.....
Chemicals, oils etc.	.....	.....
Film/video — purchase/hire	.....	.....
9. SUB-TOTAL	.....	
10. TEACHING DIVISION MARGIN/INCENTIVE: ..... % =	.....	.....
11. PROGRAM/PROJECT MARGIN: ..... % =	.....	.....
12. TOTAL	.....	

PROJECT MANAGEMENT

A key to good project management is close monitoring and control of time and money expenditure. The system described here is based on three tools derived from the seven steps described in the previous section on project costing.

- project budget versus expenditure table from costing step (see OHT 6.12 and 6.13);
- project schedule from costing steps 4 and 5 (see OHT 6.10 and 6.11);
- person - days chart (see OHT 6.17 and 6.19).

PROJECT TEAMS

Eleven key characteristics of effective teams have been identified and include:

1. Team members know and share leader's views;
2. All group members have respect for each other;
3. Individuals desire to be part of a team;
4. Open communication occurs;
5. Common sense of pride in the team;
6. When conflict occurs, it is handled constructively;
7. Co-operation is encouraged and actively fostered;
8. Group decision-making and problem-solving occurs;
9. Group works together in a relaxed manner;
10. Encouragement and credit for team effort is freely given; and
11. All members share a common goal and mission.

When selecting a project team, it is important to select a balanced group of people to form a project team.

When working with a project team, the team leader should inspire the best efforts of each team member to meet the project goals. Leaders should aim to:

- overcome attitudinal problems;
- develop compatibility;
- address skill deficiencies;
- develop a "common approach";
- encourage on-going evaluation;
- recognise and deal with stress; and
- give team ownership.

CONSULTATIVE COMMITTEE

Using an existing consultative committee, or setting up one for the project is an important way of winning wide support for the project and its outcomes. Such a committee could continue to have the wider role of facilitating the implementation of workplace restructuring.

Other important points are:

- its composition should reflect the workforce (in terms of main job types, ethnic groups and gender);
- representatives will need time to seek the views of group they represent;
- members may need training to effectively present their views; and
- the committee should be consulted at all key stages in the project.

CLIMATE SETTING

The critical early stages of the project should focus on 'climate setting' in order to gain understanding of and co-operation for the project processes. This involves three elements;

- working with the consultative committee;
- meeting with key individuals;
- briefing the whole workforce.

Briefing the workforce should be achieved through meetings (not memos!) at which it is explained:

- what the aims of the project are;
- what people can expect and who will be involved;
- how employees can participate;
- what the expected project outcomes are.

SECTION 7

SKILLS ISSUES

Four topics are covered in this section:

- multiskilling, cross-skilling, upskilling and broad banding;
- national competency standards;
- skills audits and targeted groups;
- sub-contracting and collaboration.

MULTI-SKILLING, CROSS SKILLING, UP-SKILLING AND BROAD BANDING

Multi-skilling is the acquisition of additional skills and the performance of additional skills/tasks within a given job. The additional skills/tasks may be both horizontal and vertical in nature. Horizontal skills/tasks additions means undertaking skills/tasks previously associated with another job at the same level (e.g. a sheetmetal tradesperson performing some of the skills/tasks previously associated exclusively with a boilermaker tradesperson). Vertical skills/tasks addition pertains to the performance of skills previously ascribed to occupation levels above and below the given job (e.g. a tradesperson performing skills/tasks associated with a trades assistant). In many cases, multi-skilling may not involve much additional skill acquisition since the individual may already possess the basic skills. The greatest impact of multi-skilling will be in allowing the individual to fully utilise existing skills to perform additional tasks which previously had been allocated to other jobs.

Cross skilling is a narrower term than multi-skilling as it represents a sub-set of the latter. It means a person in one technical stream (e.g. mechanical) acquiring and performing skills in another technical stream (e.g. electrical). The skills acquired are thus of the same level of complexity as those already possessed. The term has tended to be used mainly for the trades level. The term *broad skilling* is also used with the same meaning but applied generally to all levels.

Up-skilling pertains to the acquisition of skills associated with the level above what the person currently occupies.

Broad banding applies to the grouping of a number of occupational classifications at a similar level and placing them within the same wage level. The purpose is to allow the range of work performed by the workforce to be of a more general nature and to provide for a career structure. Broad banding thus formalises within an award all the developments taking place in multi-skilling. Broad banding usually will result in a reduction in the

number of job classifications and provide the stated requirements for movement vertically and horizontally within the given award.

NATIONAL COMPETENCY STANDARDS

What are national competency standards?

Competency standards are statements in outcome terms of what is expected of an individual within an occupation or function. It is another initiative in support of industry/award restructuring, the purpose of which is to move to an effective, efficient, responsive and coherent national vocational education and training system.

Standards are intended to facilitate transferability of individuals across employment situations within Australia. Standards are classified into three groups:

> *occupation core standards*, the standards required by a given occupation across all industries
>
> *industry core standards*, additional employment requirements for a particular industry or industry sector
>
> *enterprise/organisation standards*, additional requirements/further refinements or developments of existing core standards for a given enterprise/organisation

Who will develop competency standards?

They will be developed by the industrial parties and endorsed by the National Training Board (NTB).

How are competency standards written?

A central requirement of the NTB guidelines is that a competency standard be described in terms of an element of competence and an associated set of performance criteria. Under the guidelines competency standards are specified for an occupation by a process which:

1. Identifies the UNITS OF COMPETENCE that make up the occupation.

2. Breaks each Unit down into its constituent building blocks or ELEMENTS OF COMPETENCE. (These are descriptions of related sets of skills, or sometimes a single skill, that an individual is able to perform in the workplace. Each element is generally written with a verb and an object.)

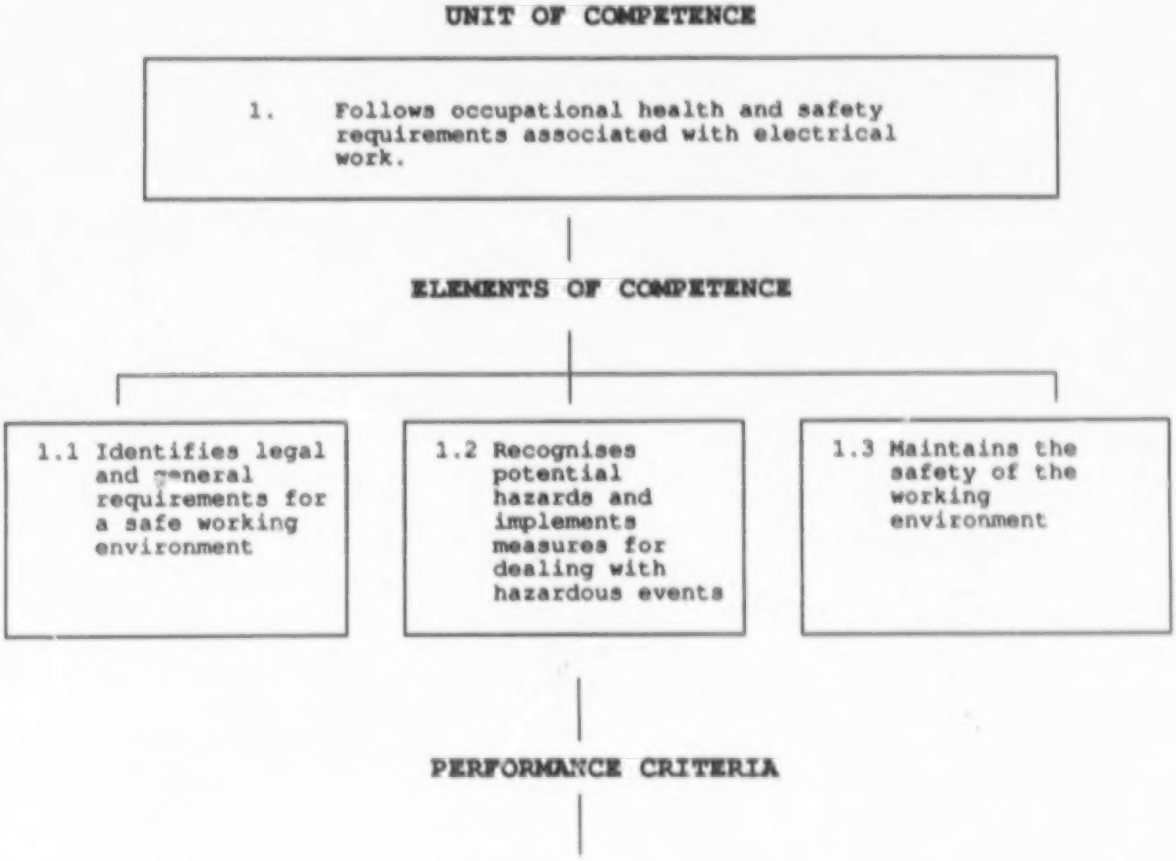
3. Indicates the PERFORMANCE CRITERIA associated with the Elements of Competence. (These are the properties or characteristics by which

the quality of the performance can be judged.)

4. States the RANGE OF VARIABLES or the contextual boundary that applies to each Element of Competence and associated Performance Criteria. (These statements define the breadth and depth of training required when delivering the competence and the nature of the assessment procedures used to measure whether or not the competence has been attained.)

The way this works in practice can be illustrated by an example from the occupational health and safety (OH&S) area.

OH&S considerations apply to virtually every occupation. The actual occupation used will be that of electrical repairer - somebody who works in a shop that carries out minor electrical repair work on television sets, radios, toasters and the like. Most employers require their repairers to possess a Restricted Electrical Licence. Obtaining such a licence involves training in technical electrical competencies as well as occupational health and safety. In the example, only the occupational health and safety competencies are considered.


UNIT OF COMPETENCE
1. Follows occupational health and safety requirements associated with electrical work.
ELEMENTS OF COMPETENCE
1.1 Identifies legal and general requirements for a safe working environment
1.2 Recognises potential hazards and implements measures for dealing with hazardous events
1.3 Maintains the safety of the working environment
PERFORMANCE CRITERIA

1.2.1 Recognises and eliminates electrical hazards in workplace (eg risk of electric shock)

1.2.2 Recognises the need to control electrical hazards that cannot be eliminated from the workplace (eg water in close proximity to power outlet)

1.2.3 Demonstrates ability to deal with chemical spills and identifies any associated first aid required

1.2.4 Recognises and demonstrates use of fire extinguishers to put out range of fires which can occur in workplace

1.2.5 Demonstrates technique for evacuating the workplace (eg fire evaluation procedures)

1.2.6 Demonstrates method of freeing person receiving electrical shock

1.2.7 Demonstrates ability to assess treatment needed by victim of electrical shock

1.2.8 Demonstrates ability to manage electrical burns and other wounds

1.2.9 Demonstrates essentials of resuscitation.

RANGE OF VARIABLES

Training

The training covers the recognition, control and elimination of hazards in a workplace where there are electrical hazards. This includes:

- Procedures for checking portable electrical power tools (1.2.1)
- Use of double insulated equipment (1.2.1)
- Hazard control measures in workplace (1.2.2)
- Methods for dealing with spills of polychlorinated biphenyls (PCBs), acids and alkalis (1.2.3)
- Properties of PCBs, acids and alkali (1.2.3)
- First aid for acid and alkali burns (1.2.3)
- Recognition and use of all types of portable fire extinguishers for class A, B & C fires (1.2.4)
- Properties of chemicals used in extinguishers (1.2.4)
- Fire blankets (1.2.4)
- Fire drill and other evacuation procedures (1.2.5)
- Electrical accidents (1.2.6)
- First aid assessment (1.2.6/7)
- First aid for shock, bleeding, fire and electrical burns (1.2.8)
- Essentials of resuscitation (1.2.9).

Assessment

Assessment methods available are:

Under Workplace Conditions

A1 Complete checklist while observing process of performance
A2 Complete checklist while observing product of performance
A3 Responses to oral questions to assess knowledge and attitudes underpinning performance

Away from Workplace Conditions

B1 Complete checklist while observing process of performance
B2 Complete checklist for product of performance (i.e. result of test, project, assignment)
B3 Responses to oral questions to assess knowledge and attitudes underpinning performance
B4 Score written test (multiple choice, short answer, etc.) used to assess knowledge underpinning performance.

Performance criteria 1.2.1, 1.2.2 and 1.2.5 should be assessed using methods A1 and A3 (i.e. under workplace conditions) whenever possible. However all of the others require simulated rather than actual work-place assessment conditions. In most cases they will need to be assessed away from the workplace using methods B1 and B2, as appropriate. In addition, some of the criteria have a substantial underpinning knowledge component which needs to be assessed using methods B3 and B4.

What is the meaning of accreditation, certification and assessment?

Accreditation pertains to the recognition by state/territory authorities of courses and training programs particularly in respect of whether the latter will enable the achievement of the relevant competencies.

Assessment is the process of forming a judgement about a person in respect of performance criteria. The process could involve examination, practical tests, performance observation and the completion of assignments.

Certification is the provision of a certificate as the consequence of the assessment process.

Information summarised from:

National Competency Standards, National Training Board, 1991.
Beginners Guide to Competency Standards, TAFE National Centre, 1991.

SKILLS AUDITS AND TARGETED GROUPS

The structural efficiency principle of the August 12, 1988 Australian Conciliation and Arbitration Commission decision has one of its stated considerations for award restructuring as follows:

> *"the addressing of cases of discrimination against sections of the workforce."*

The sections of the workforce chiefly disadvantaged are women, the young, migrants and those with disabilities. Women comprise nearly half of Australia's workforce but are under-represented in senior positions, and on average earn only two thirds of the wages of men. It is clear that because of the family responsibilities of many women employees and various other factors, Australian industry is not taking full advantage of women's skills. Award restructuring presents a big opportunity to redress this. The following steps should be taken:

- awards should be restructured to remove barriers to the employment of women and to remove other forms of gender bias;

- consultative committees formed to consider restructuring should include women representatives;

- skills analysis and skills audit projects should avoid gender bias by giving due weight to all relevant skills, including inter personal skills;

- flexible work patterns should be introduced to allow women (and men with family responsibilities) to take up interrupted careers without penalty, to work more flexible hours, or to take up permanent part-time employment.

Essentially, if wages and job progression are more directly linked to skills, skills acquisition is encouraged, and each person's full range of relevant skills is used, then award restructuring will be on track and discrimination largely will be removed.

Skills analysis and skills audit projects should avoid discrimination in both process and product. Key issues are:

- composition of consultative committee;

- selection of consultant;

- data collection approach; and

- breakdown of skills.

The following list of issues has been adapted from 'Skill Counts' by Kim Windsor (1991):

Consultative committee

- Does the consultative committee represent all sections of the workforce including gender, work section, job type and ethnic groups?

- If the committee is not representative, have strategies and timelines been set to address this problem?

- Has the committee planned a way to inform itself about the position and issues facing women in their workplace?

- Have arrangements been made to enable representative committee members to properly represent their group - i.e. to be informed of the views of the group they represent?

- Have members of the consultative committee got the skills necessary for active participation? If not, is training being made available to give them the skills?

Selection of consultant

- Does the consultant have a good grasp of both direct and indirect discrimination against women in the workforce?

- Is the consultant able to draw out information from women who describe their job simplistically: "I just operate a sewing machine?"

- Does the selected consultant have the support of both the management and employees?

Data collection approach

- Do participants in the skills analysis reflect the gender composition of people in the job?

- Is the language used in skill lists easy to understand? (It should avoid overly technical terms.)

- Have steps been taken to support participation of non-English speaking workers?

- Is there consistency in the level of detail that describes all jobs - those done by female and male, English and non-English speaking, workers?

- Is there consistency in the level of detail that describes all jobs - those done by female and male, English and non-English speaking, workers?

- Has the skills audit process been organised to give all members of the workforce an equal chance to respond?

- Will non-English speaking people be given an opportunity to participate?

- Will people who have problems reading and writing be able to respond?

- Will someone be available to assist people who are not clear about the questions being asked?

- Does the process encourage people to identify skills acquired both in and out of the workforce in Australia and overseas?

Breakdown of skills

- Have organisational and communication skills been given due weight as well as technical or machine-based skills?

SUBCONTRACTING AND COLLABORATING

Subcontracting and collaborating provide opportunities for a consulting organisation such as a college to expand the range, number and complexity of projects undertaken.

Advantages

Through subcontracting or collaborating your organisation or college can:

- obtain expertise not available to the organisation or college (e.g. subject area expertise, expertise in particular data collection techniques, expertise in particular data analysis approaches).

- complete projects more economically (e.g. use data analysis expertise rather than manually handle questionnaires, use a direct mail organisation for a large mail survey).

- speed up projects (e.g. bring in project staff when your team is committed elsewhere, undertake simultaneous work at a number of sites, rather than one at a time).

- gain credibility in the project proposal (e.g. nominate experts who are not part of your organisation; show depth of talent in project team; have your organisation and another collaborate when the two organisations have a good reputation in different but relevant fields).

For example, TAFE colleges can use other colleges in the system to create winning project teams. Colleges think too often that the other colleges are RIVALS - they are potential allies - e.g. In Queensland eight colleges cooperated with the Professional Development Branch to deliver a 2 day training program to consultative committees at 33 sugar mills and terminal sites around the state. No single college could have won the project due to lack of staff, expense of travel and accommodation and time taken to deliver the training. This was a significant Award Restructuring project that established and fostered close links between that industry and local TAFE colleges.

Disadvantages

Collaborating groups need to have common goals and a basis of trust to avoid disagreements such as:

. who gets paid what?

. who gets their name on final reports?

. who attends meetings with client groups?

. who gets scarce resources?

. who gets follow up work with the client?

. who is in charge?

. what happens when a subcontractor or collaborative partner doesn't perform?

. who owns intellectual property?

Project management for subcontractors and collaborators

To avoid the disadvantages, strong project management skills are needed. For example:

. Plan the project - critical steps.

. Plan the project team (internal staff).

. Establish the need for

  - subcontractors
  - collaborative relationships

. Write objectives for these non-college staff and note parameters as you know them e.g.

  - time
  - costs

  Indicate unknown parameters.

. Note subcontractor's involvement on the project planned - which critical steps are involved.

. Determine responsibilities, reporting requirements and meetings schedules.

- Invite external staff to a meeting to gain their agreement to the above and establish costs, timelines, build the team etc.

- Document all agreements and undertakings and ensure all parties receive copies.

- Use all the above to track the project, particularly the "outsiders" achievement of objectives.

- Hold meetings to identify problems and schedules. Take action before they become crises.

- Keep all parties informed of any changes. Communication should be documented briefly. e.g. fax confirmation of phone calls involving changes.

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